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ABSTRACT

Based on the assumption that educators can adopt new patterns of organization and management to improve the quality of decision and change in education, this paper attempts to make decision theory and small group process theory relevant to practical decision situations confronting educational managers. Included are (1) a discussion of the increasing rates of technological and social change and their implications for organizational change; (2) an analysis of the decision process, highlighting the value of collective decisionmaking; (3) some suggestions for improving organizational decisionmaking in education; (4) a discussion of the roles of rationality and creativity in the decision process; (5) several guidelines for managing and functioning within the decision process; and (6) an appendix listing behavioral propositions drawn from small group research concerning group process. The work reported herein was performed pursuant to an ESEA Title III grant. Related documents are EA 003 095 and EA 003 040. (Author/LLR)

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COLLECTIVE DECISION MAKING IN ORGANIZATIONS

by

Lynne L. Svenning

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Prepare Educational Planners for California

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PREFACE

The decision process has been the focus of much study and thought. Philosophers, economists, small group researchers, systems analysts, policy analysts, sociologists, and educational administrators have all delved into the process by which man chooses and charts a course of action. The efforts to describe, analyze, and offer guidelines for "effective decision making" have yet to be related to the peculiar requirements of the collective decision making in education. This paper is an attempt to make decision theory and small group process theory relevant to practical decision situations confronting educational managers.

Education can be thought of as the process through which individuals are acquainted with the past functions of society and developed for participation in future society. The educational system must at once reflect the past and help establish the order of the future. The decisions made by educators concerning the philosophies, purposes, priorities, policies, and programs, as well as the more immediate decisions dealing with curriculum, teaching personnel, facilities, etc., must take into consideration the past, present, and future. Every institution or organization, be it industrial, governmental or educational, functions according to the decisions which determine its policies and programs. If the decisions represent a true response to reality, they will be useful in moving the organization forward. If, however, the decisions are reflections of habits carried forward from

the past as is the case in many well-established organization or institutions, entropy advances and the system fails. Unfortunately, many educational decisions are traditional shibboleths by which the ritual of education is conducted, rather than self-renewing decisions that keep education responsive to the ever-changing needs of a complex society.

This paper is predicated on the assumption that educators can adopt new patterns of organization and management that will in turn improve the quality of decision and change in education. This paper includes:

1. A brief discussion of the ever-increasing rate of technological and social change and the implications for organizational change, particularly in educational systems.

2. An exploratory analysis of the decision process, highlighting the value of collective decision making and the factors in decision making over which some control might be exerted in order to improve decision making.

3. Suggestions for improving organizational decision making in education.

4. A discussion of the roles of rationality and creativity in the decision process, stressing the need for increasing and broadening the role of each in educational decision making.

5. A series of practical guidelines for managing and functioning in the collective decision process.

6. An appendix listing a series of behavioral propositions drawn from small group research concerning group process.

TABLE OF CONTENTS

Chapter

I. CHANGE, ORGANIZATION, AND MANAGEMENT 1

Change 1
New Organizational Patterns to Meet Change Needs . . . 3
Bureaucracy--The Traditional Pattern 3
Characteristics of Bureaucracies 4
Bureaucracies are Change Resistant by Nature . . . 7
Matrix Organization--An Emerging Pattern 8
Characteristics of Matrix Organizations 10
The Matrix Pattern Facilitates Change 12
Management Concepts Congruent with Change 12
The Systems Approach 13
Systems Analysis 15
Participative Management 16
Implications for Education 18
Suggested Readings 22

II. THE COLLECTIVE DECISION PROCESS IN THE ORGANIZATIONAL CONTEXT 25

The Decision Process 25
The Decision Process in Organizational Context 27
A Systematic Organizational Decision Process 28
The Value of Collective Decision Making in Organizations 33
Factors Influencing the Organizational Decision Process 38
Types of Organizational Decisions 38
Policy Decisions 39
Managerial Decisions 41
Operational Decisions 41
Decision-Making Cycle 42
Dimensions of a Decision 43
Level of Generality or Abstraction 44
Area of Impact 44
Duration of the Decision 45
The Decision Environment 45
Internal Characteristics 47
The Interaction Effect of the Collective Decision-Making Unit and the Organization . . . 47

External Characteristics 48
The Degree of Uncertainty and/or Risk Accompanying the Decision 50
The Human Element 51
Predecision Sets 52
State of Decider at Decision Time 54
Limits--But 55
The Decision Product 55
Quality and Acceptability of the Decision 56
Desirable Characteristics of a Decision Product . . 57
Improving Organizational Decision Making in Educational Systems 58
Improving Decision-Making Structures 59
Improving the Decision Process 61
Conclusion 64

III. RATIONALITY AND CREATIVITY IN DECISION MAKING 65

Today 66
Rationality 69
Political Rationality 72
Political Decisions 74
Applying Political Rationality 75
Legal Rationality 76
Judicial Decisions 77
Applying Legal Rationality 77
Social Rationality 79
Integrative Decisions 79
Applying Social Rationality 80
Economic Rationality 81
Economic Decisions 82
Applying Economic Rationality 83
Technical Rationality 83
Technical Decisions 84
Applying Technical Rationality 84
Integrating Different Rationalities in the Educational Decision Process 85
Creativity in Decision Making 92
Integrating Creativity and Rationality in Educational Decision Making 93

IV. GUIDELINES FOR MANAGING GROUP PROCESS 95
Plan for Systematic Problem Finding-Solving and Decision Making 96
Establish An Open and Supportive Climate for Group Activities 118
Use an Interventionist Approach 122
Encourage Group Feedback and Evaluation 135
Summary and Conclusions 140

APPENDIX 146

BIBLIOGRAPHY 157

We are not yet emotionally an adaptive society, though we try systematically to develop forces that tend to make us one. We encourage the search for new inventions; we keep the mind stimulated, bright, and free to seek out fresh means of transport, communication, and energy; yet we remain, in part, appalled by the consequences of our ingenuity and, too frequently, try to find security through the shoring up of ancient and irrelevant conventions, the extension of purely physical safeguards, or the delivery of decisions we ourselves should make into the keeping of superior authority like the state. These solutions are not necessarily unnatural or wrong, but historically they will never be enough to give us the serenity and competence we seek. . . . We may find at least part of our salvation in identifying ourselves with the adaptive process and thus share . . . some of the joy, exuberance, satisfaction, and security . . . to meet the changing time.

Morison, 1950

CHAPTER I

CHANGE, ORGANIZATION, AND MANAGEMENT

> If we could first know <u>where</u> we are, and <u>whither</u> we are tending, we could better judge <u>what</u> to do, and <u>how</u> to do it.
>
> Abraham Lincoln

<u>Change</u>

Never before in the history of man has the pace of innovation* been so rapid as to cause man to stop, analyze, and plan for the management of change. Change is not new, nor is man's interest in the process by which his social and physical environment is altered, transformed, and/or modified. ". . . what is new is the <u>degree of change</u>" (Postman and Weingartner) 1969, p. 10). We are living in what Postman and Weingartner term the "Change Revolution." The rate of innovation and change is so rapid that the personal and organizational systems which proved workable just five years ago are today obsolete.

> Stability and consequent predictability--within "natural cycles" --was the characteristic mode. But now, . . . we've reached the stage where change occurs so rapidly that each of us in the course of our lives has continuously to work out a set of values, beliefs,

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*Innovation is the process by which new ideas are developed and introduced into the ongoing social order.

> and patterns of behavior that are viable, or seem viable, to each of us personally. And just when we have identified a workable system, it turns out to be irrelevant because so much has changed while we were doing it (Postman and Weingartner, 1969, p. 11).

We can no longer assume that what was functional five years ago will be functional today, or that what is functional today will operate effectively tomorrow.

What does the "Change Revolution" mean for the organizations and institutions that prepare our youngsters for life in a world that will be different from the one in which they are presently living and learning? Simply put, it means, in addition to designing educational programs that will develop individual abilities to cope with and deal effectively with change,* educational organizations must operate in a manner conducive to their own change and continuing growth. Unfortunately, as Oettinger (1969, p. 64) points out, ". . . schools are now tethered by so many strings, that they find it hard to change themselves, hence still harder to induce change in society." It is difficult to produce change-oriented individuals in non-change-oriented institutions (Rogers and Svenning, 1969, p. 20).

Many educational organizations are existing in a state of static equilibrium achieved fifty years ago. As a result, we hear cries of irrelevancy from those "passing through" the educational process. If our educational systems are to function effectively in a larger social system dominated by change, they must operate in a state of dynamic equilibrium.

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*"Coping with rapid change, living in temporary work systems, developing meaningful relations and then breaking them--all augur social strains and psychological tensions. Teaching how to live with ambiguity, to identify with the adaptive process to make a virtue out of contingency, and to be self-directing--these will be the tasks of education, the goals of maturity, and the achievement of the successful individual" (Bennis, 1966, p. 14).

That is, there must be a "continual establishment of a new, more complex and more comprehensive equilibrium" (Katz and Kahn, 1966, p. 23). A dynamic organization must always be in the process of balancing and adjusting in response to changing needs and/or goals.

Static-state organizations are maintained and supported by rigid, hierarchical patterns. These patterns inhibit change and growth. In order to establish more dynamic organizations, we need to modify organizational patterns to fit a mode of change and self-renewal. Organizations that not only react to change, but consciously anticipate and plan for change, will be more responsive to the environment in which they operate.

New Organizational Patterns to Meet Change Needs

> Change has become a way of life in modern organizations. The people who manage these organizations are discovering that the traditional methods of planning and executing decisions, and indeed, the day-to-day organization and operating procedures of the enterprise, were not designed to function in such a climate (Cleland and King, 1969, p. 9).

Bureaucracy--The Traditional Pattern

The bureaucratic pattern of organization was developed in response to the need to organize and direct the forces of the 19th Century industrial revolution. "Bureaucracy, with its nicely defined chain of command, its rules and its rigidities, is ill-adapted to the rapid change the environment now demands" (Bennis, 1966, p. 12).

Why, you may ask. Let's briefly examine some of the characteristics of bureaucracies and the reasons may become obvious.

Characteristics of Bureaucracies

1. Vertical Pyramid Structure and Scalar Chain of Command. A well-defined hierarchy of authority designed to correlate with a gradation value forms the basis of structure in a bureaucracy. It emerged over time as a means of legitimizing authority roles and relationships. The vertical level of an individual's position in the organization indicates his value, competence, and power. Individuals exercise the specific authority accorded them by their position in the vertical pyramid since those in higher positions are supposedly more competent and knowledgeable and better able to make decisions. Authority flows from the highest level to the lowest level through a chain of command in which the subordinates receive orders only from those directly superior in the chain. "Authority to execute decisions is passed down the hierarchy; information and responsibility are exacted upward through the intervening layers of executives" (Cleland and King, 1968, p. 141).

2. Departmental Alignment. In most bureaucratic structures the organizational pattern is based on some technique of departmentation, such as functional homogeneity, similarity of product, territorial location, etc. The underlying assumption is: it is easier to manage a group of similar operations than to manage an operation consisting of many and varied elements and operations. Such alignment patterns tend to develop departmental loyalties at the expense of organizational goals.

3. Fixed Organizational Statuses. "Each position within the organization has a fixed and official area of jurisdiction, and this area is delineated in authority patterns and evidenced in job descriptions, policy manuals, etc." (Cleland and King, 1968, p. 143). The power and responsibility

of each organizational position is fixed, nonnegotiable and nondelegatable.

4. A Well-Defined System of Procedures and Rules for Dealing with All Contingencies Relating to Work Activities. Carefully delineated procedures and rules are viewed as the most effective and efficient way of dealing with operations. The rules tend to be rigid rather than flexible and applied without any reverence for unique situations.

5. Large size. Size and bureaucracy tend to go hand in hand. The larger the organization, the more likely it is to be bureaucratic in nature.

6. Impersonality in Operation. Heavy dependence on formal policies and rules as a means for dealing with most contingencies leads to an impersonality in the operation of the organization. "There is a heavy dependence on formal policies and rules to motivate and guide behavior" (Cleland and King, 1968, p. 146). The large size of most bureaucracies also contributes to impersonality in interpersonal relationships. It is the position, rather than the individual, that counts in a bureaucracy.

7. Parochialism. Fear of losing opportunities for advancement up the vertical ladder of status and financial success makes many bureaucratic employees "yes-men." They feel restricted in voicing opinions running counter to advocated positions of the organization. Gatekeeping based on fear of losing opportunities also means that much "negative" information never winds its way up through the organizational hierarchy. Thus, those at the top often have an inaccurate picture of what is happening.

8. Subordination of Individual Objectives to Organizational Goals and Objectives. Since organizational goals and objectives are defined by high-level authority, they are often not consistent with the individual goals of those lower in the hierarchy. Efficiency, integrity, and loyalty

to these organizational goals is expected even when they conflict with those of the individual.

9. Tendency to Perpetuate Itself. Like the man who grows fatter as he grows older, many bureaucracies expand over time regardless of whether there is a need. Rather than cease to function because there is no need, the bureaucratic organization shifts its function in order to survive and thus perpetuate its need for existence (Cleland and King, 1968, p. 146). In many instances, it shifts as is, with little regard for differences between the old and new goals and functions.

10. Fragmented and Inadequate Information Flows for Decision Making. The organizational structure of a bureaucracy leads to a less than adequate flow of information for peak effectiveness in operation and decision making. "This general process can be described as information organized into certain patterns and passed upward through management levels, while decisions and directives based on this information are passed downward" (Read, 1969, p. 18). "Officials near the top of a bureaucracy have a greater breadth of information about affairs in the organization than those below. Individuals at lower levels, however, have more detailed knowledge about their particular activities. Therefore, no one knows everything about what is going on in the organization" (Cleland and King, 1968, p. 146). This means most of the people responsible for the efficient and effective functioning of the organization lack an in-depth gestalt of organizational goals and objectives, and those in decision-making positions lack specific knowledge about actual operations.

Bureaucracies are Change Resistant by Nature

The criticisms of the bureaucratic pattern are many and varied. Bennis (1966, p. 6) states:

> I have recently cataloged the criticisms of bureaucracy, and they outnumber and outdo the Ninety-five Theses tacked on the church door at Wittenberg in attacking another bureaucracy. For example:
>
> 1. Bureaucracy does not adequately allow for personal growth and the development of mature personalities.
> 2. It develops conformity and "group-think."
> 3. It does not take into account the "informal organization" and the emergent and unanticipated problems.
> 4. Its systems of control and authority are hopelessly outdated.
> 5. It has no adequate juridical process.
> 6. It does not possess adequate means for resolving differences and conflicts among ranks and, most particularly, among functional groups.
> 7. Communication (and innovative ideas) are thwarted or distorted because of hierarchical divisions.
> 8. The full human resources of bureaucracy are not being utilized because of mistrust, fear of reprisals, etc.
> 9. It cannot assimilate the influx of new technology or scientists entering the organization.
> 10. It will modify the personality structure such that man will become and reflect the dull, gray, conditioned "organization man."

Forces for growth, innovation, and change are stymied by the "fixed" nature of operating procedures in the bureaucracy. The "established" hierarchical positions, fixed lines of communication, and "rules" for behavior all inhibit change and function to maintain the status quo. At best, the bureaucratic organization is sluggish in its response to the change needs of its personnel and/or the larger environment. Most often, it fails to respond all together.

Bureaucracies are suited to stable environments of the past, not the volatile environments of contemporary society. We cannot afford bureaucratic educational organizations that do not and cannot respond to the

change demands of the society they serve. "Because most . . . educational . . . organizations follow the bureaucratic form of decision making, top management would have to modify this system significantly in order to increase its solution payoffs" (Young, 1966, p. 382). ". . . authority and responsibility may well be the wrong principles of organization. It may well be that we will have to learn to organize not a system of authority and responsibility--a system of command--but an information and decision system--a system of judgement and expectations" (Drucker, 1959, p. 174).

Matrix Organization--An Emerging Pattern

> What appears to be occurring is that our conception of the organization is changing from one of structure to one of process. Rather than visualize the organization in its traditional structural, bureaucratic, and hierarchical motif, with a fixed set of authority relationships much like the scaffolding of a building, we are beginning to view organization as a set of flows, information, men, material, and behavior. Time and change are the critical aspects (Young, 1969, p. 51).

Are there organizational patterns that will support flexible responses to: technological growth; changing social and political values, increased complexity, diversity, and specialization; environmental crises; a mixed economy;* etc., etc., etc.?

Basically, what is needed is a fluid organizational structure that can be rearranged on the basis of changing definitions of organizational goals and objectives. "Adaptive, problem-solving, temporary systems of diverse

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*Bennis (1969, p. 15) outlines the characteristics of a mixed economy as: interdependence rather than competition; turbulence and uncertainty rather than readiness and certainty; large scale rather than small scale enterprises; and complex and multi-national rather than simple national enterprises.

specialists, linked together by co-ordinating and task-evaluating executive specialists in an organic flux--this is the organization form that will gradually replace bureaucracy as we know it" (Bennis, 1969, p. 15).

We are moving from social structures keyed to permanency and stability to those keyed to temporality and change. In an organizational context, we should be moving from bureaucracies to program and/or project-oriented organizations.* The matrix pattern of organization is the resulting hybrid. It combines the functional-orientation of the bureaucracy with the program and/or project-orientation of more temporary organizations. The organization is structured both on the basis of functions and programs or projects. It can be thought of as organic system moving on two axes. The administrative axis serves as a reference line for functional units of the organization such as divisions or offices. Organizational units concerned with broad issues, sets of problems, or achievement of specific objectives which require multi-disciplinary efforts are located along the program or project axis.

> The divisions and offices on the administrative axis represent the "administrative homes" for practically all professional personnel. As the agency defines, plans, develops, and staffs major programs which qualify for "program axis" management, professional personnel from the divisions (supplemented by outside temporary or "instant" staff) will be assigned to work on such programs for appropriate portions of their time (Minear, 1968, p. 143).

The matrix pattern of organization can put people with questions and

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*A program-oriented organization is one in which all the goals of the organization are accounted for by programs designed to lead to goal attainment. A program structure should permit comparison of alternative methods of achieving objectives.

A project organization is oriented to the achievement of high priority objectives within a limited time frame. The organization's life span is directly correlated with the achievement of its objectives. It is a temporary organization.

problems in contact with various sources of expertise, experience, skills, and competencies. The matrix pattern facilitates rather than restricts interaction within the organization.

> The program axis (oriented to activities) cuts directly across the traditional functional organization boundaries, offering broad opportunities to form multidisciplinary task-oriented teams, and forcing a much broader view of educational issues and problems. Such an organizational matrix stresses need for improved interdivisional communication and planning, requires the application of modern management methods and techniques, provides for effective short-term management, and leads to the long-range planning and adaption now demanded (Minear, 1968, p. 144).

Characteristics of Matrix Organizations

1. Integration of Operational and Functional Aspects of the Organization. The vertical hierarchy of bureaucratic systems often separated the operational level, the managerial level, and the policy-making levels. In a matrix organization all aspects of the system are interrelated through vertical, horizontal, and diagonal lines of responsibility and accountability.

2. Goal and Objective Orientation. The goals and objectives of a matrix organization must be clearly specified so that the efforts of the individuals can be directed to those ends. Individuals develop "loyalties" to the achievement of the objectives rather than departments or divisions.

3. Fluid Organizational Roles. More flexible and varied use of personnel results when an organization adapts a program or project orientation. Individuals may work for two, three, or four program managers, serving in different capacities in each one of the programs. A by-product of such variability is professional growth and development. "Long and varied experience in many types and levels of organization has demonstrated

that this can and does work, and work well, with benefit to organizational health and enterprise, and to the individuals involved" (Minear, 1968, p. 144).

4. An Emphasis on Planning. As projects are completed, organizational efforts can be focused in new directions. This forces a constant examination of objectives, new organizational needs, and the changing demands of the larger environment. This planning cycle keeps the organization self-renewing.

5. Emphasis on Skills and Competencies Rather Than Positions. Personnel are chosen for work teams on the basis of skills and competencies needed rather than on the basis of a position they hold in a hierarchical structure. Project needs are matched with required skills, and personnel drawn from wherever needed in the organization.

6. Use of Work Groups or Task Forces. Many planning, evaluating, decision, and operational activities are carried out by groups rather than individuals due to their complexity. The composition of the groups varies with the task or project.

7. Coordination of Individual and Organizational Goals. Because more individuals are involved in planning and decision-making activities there is a greater consonance between individual and organizational goals.

8. Integrated, Interrelated and Freer Information and Communication Flows. The fluid movement of people throughout the organization, and the involvement of individuals in more than one type of activity or project means a more integrated flow of information and communication. The thwarting of communication and innovative ideas due to hierarchical divisions in a bureaucracy almost disappears in a matrix organization.

9. Increased Responsiveness and Adaptability. All of the

aforementioned factors lead to an organization that is more flexible, more adaptable, and more responsive to change. A matrix organization has an increased capacity to respond quickly to identified problems and opportunities, and the power to mobilize more effectively the resources relevant to understanding and utilizing current happenings.

The Matrix Pattern Facilitates Change

The program or project orientation of the matrix organization ensures change. As projects are completed (objectives achieved), new objectives are specified and new projects generated. A program or project orientation means that the organization is always in the process of identifying needs and/or opportunities, defining and/or redefining objectives in light of current and/or future states, and designing programs or projects to meet the new objectives. It is an information and decision-making system responsive to system and environmental change.

The "fluid" nature of operations in a program or project organization stimulates the currents of change. The task mobility of personnel and the corresponding changes in role and function require continual professional growth and development. Further, varied assignments for individuals is likely to increase the breadth of creative application of experience.

The matrix organization is one answer to creating more viable systems for the technotronic age.

Management Concepts Congruent with Change

Every human activity involving human effort possesses an element

> which to some degree brings unity and cohesiveness to the undertaking. We call this element management (George, 1968, p. 160).
>
> How best to organize the efforts of individuals to achieve desired objectives has long been one of the world's most important, difficult, and controversial problems (Likert, 1961, p. 5).

Just as organizational patterns and structures must be altered to accommodate change, so must the principles underlying the management of organizational efforts. Perhaps the basic philosophy underlying managerial behavior has already begun to change. Bennis (1966, p. 188) notes a fundamental change in managerial philosophy reflected in the following three areas:

1. A new concept of man, based on increased knowledge of his complex and shifting needs, which replaces the over-simplified, innocent push-button or inert idea of man.
2. A new concept of power, based on collaboration and reason, which replaces a model of power based on coercion and fear.
3. A new concept of organizational values, based on an humanistic existential orientation, which replaces the depersonalized, mechanistic value system.

A change in philosophy also means a change in approach, principle, techniques, and tools. Briefly highlighted in the following paragraphs are some of the management concepts that appear related to coordinating, administering, and controlling a change-oriented organization.

The Systems Approach

> Millennia age, some genius discovered that such wiggles as fish and rabbits could be caught in nets. Much later, some other genius thought of catching the world in a net. . . . The net has "cut" the big wiggle into little wiggles, all contained in squares of the same size. Order has been imposed on chaos. We can now say that the wiggle goes so many squares to the left, so many to the right, so many up, or so many down, and at last we have its number. . . . The net has thus become

> one of the presiding images of human thought. But it is always an image, and just as we cannot use the equator to tie up a package, the real wiggly world slips like water through our imaginary nets. However much we divide, count, sort or classify this wiggling into particular things and events, this is no more than a way of thinking about the world: it is never actually divided (Watts, 1966, p. 52-53).

Accompanying the emphasis on organizational goal and objective specification is an attempt to broaden the organizational perspective, to focus on the organization as a systemic whole that exists in an interaction influence relationship with a larger environment and other systems in that environment. In the past, the organizational view has often been narrow--concentrated on departments or divisions of an organization with little regard for the whole organization or the environment in which it operates. For example, the cost reduction programs planned by the "efficiency experts" of the past were often narrowly confined to improving specific divisions in the organization. These experts were often able to reduce the costs of a specific division. Unfortunately, they paid little attention to the impact on the total organization--and that was sometimes disastrous.

Hopefully, the systems approach prevents such disasters by forcing a perspective which includes a view of the whole system and its environment, including the transactions and relations among all the interacting interfaces. The total organization is considered as a purposive system, and its parts or elements and their relationships to each other, to the total organization, and to the environment are viewed in light of their contributions to the purposes of the system.

The aim of the systems approach is to "spell out in detail what the whole system is, the environment in which it lives, what its objective is, and how this is supported by the activities of the parts" (Churchman, 1968,

p. 29). While it may be somewhat arrogant* to think that an individual or group of individuals can really envision the complexities of a total system and its inter- and intra-relationship as it strives toward its purpose, the view of the whole as a starting point for analysis makes more sense than starting with the parts.

> . . . just as no thing or organism exists on its own, it does not act on its own. Furthermore, every organism is a process: thus the organism is not other than its actions. to put it clumsily: it is what it does. More precisely, the organism, including its behavior, is a process which is to be understood only in relation to the larger and longer process of its environment. For what we mean by "understanding" or "comprehension" is seeing how parts fit into a whole, as one assembles a jigsaw puzzle, but that the whole is a pattern, a complex wiggliness, which has no separate parts. Parts are fictions of language, of the calculus of looking at the world through a net which seems to chop it up into bits. Parts exist only for the purpose of figuring and describing, and as we figure the world out we become confused if we do not remember this all the time (Watts, 1966, pp. 89-90).

Systems Analysis

The tool resulting from the systems approach is systems analysis, which is "a systematic approach to helping a decision maker choose a course of action by investigating his full PROBLEM, searching out objectives and alternatives, in light of their consequences, using an appropriate FRAMEWORK

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*"There is a story often told in logic texts about a group of blind men who are assigned the task of describing an elephant. Because each blind man was located at a different part of the body, a horrendous argument arose in which each claimed to have a complete understanding of the total elephantine system.

"What is interesting about this story is not so much the fate of the blind men but the magnificent role that the teller had given himself--namely, the ability to see the whole elephant and consequently observe the ridiculous behavior of the blind systems describers. The story is in fact a piece of arrogance. It assumes that a very logically astute wise man can always get on top of a situation, so to speak, and look at the foolishness of people who are incapable of seeing the whole" (Churchman, 1968, p. 28).

--in so far as possible analytic--to bring expert judgment and intuition to bear on the problem" (Rand Corporation, June, 1968, as quoted in Evans, 1970). Systems analysis is a continuing process that encourages examination, evaluation, and redefinition of delineated organizational purposes in light of both societal and organizational needs. It provides "both a framework and methodology that can be used to plan, develop, and implement programs of planned change" (Miller, 1969, p. 1). "The effectiveness of systems analysis . . . requires either that objectives and criteria of evaluation be known in advance, or that alternative possible objectives be clearly enough formulated so that they can be compared; and criteria and objectives of specific actions obviously relate to a society's system of values" (Mesthene, 1970, p. 46).

Participative Management

Increasingly, individuals are demanding the right to participate in planning and decision making that affects their work, education, social, and political lives. In addition, the complexity of problems generated by a rapidly changing environment requires group rather than individual efforts for solution, as it is almost impossible for any one individual to marshal all the relevant information, generate numerous alternative solutions, exercise objective judgment in evaluating solution alternatives, and make effective final decisions.

The time is ripe for participative management. In a participative management system the manager uses: (1) the principle of supportive

relationships,* (2) group problem finding, problem solving, and decision-making methods, and (3) high performance goals as a basis for operation. An organization operating with successful participative management techniques is described by Likert (1970, p. 3) in the following manner.

> This human system is made up of interlocking work groups with a high degree of group loyalty among members and favorable attitudes and trust between supervisors and subordinates. Sensitivity to others and relatively high levels of skill in personal interaction and the functioning of groups also are present. These skills permit effective participation in decisions on common problems. Participation is used, for example, to establish organizational objectives which are a satisfactory integration of the needs and desires of all members of the organization and of persons functionally related to it. High levels of reciprocal influence occur, and high levels of total coordinated influence are achieved in the organization. Responsibility for the organization's success is felt individually by the members and each initiates action, when necessary, to assure that the organization accomplishes its objectives. Communication is efficient and effective. There is a flow from one part of the organization to another of all relevant information important for each decision and action. The leadership in the organization has developed what might well be called a highly effective social system for interaction and mutual influence.

This type of management is a striking contrast to authoritarian influence and restricted interaction characteristics of bureaucratic systems. Participative management is the natural ally of a project or program orientation in an organization.

Because people work together in planning, evaluating, and decision-making activities, differences of opinions are likely to be frequent.

> Conflict and differences of opinion always exist in a healthy and virile organization, for it is usually from such differences

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*The principle of supportive relationships is defined as: "The leadership and other processes of the organization must be such as to ensure a maximum probability that in all interactions and in all relationships within the organization, each member, in light of his background, values, desires, and expectations, will view the experience as supportive and one which builds and maintains his sense of personal worth and importance" (Likert, 1961, p. 103).

> that new and better objectives and methods emerge. Differences are essential to progress, but bitter, unresolved differences can immobilize an organization. The central problem, consequently, becomes not how to reduce or eliminate conflict, but how to deal constructively with it (Likert, 1961, p. 117).

Thus, managers of projects or task force groups must learn to use conflict as a constructive force in group work activities.

These are not the only new management concepts that are relevant for individuals working in matrix organizations (see suggested readings) but they are two of the most basic.

Implications for Education

> Many educators agree that education is experiencing a value crisis from which it may emerge as a very different institution. Since it is such a central, formative influence on the character of the society, much of the future of the country and of the world depends upon the outcome. Among the dimensions of the crisis is the issue: To what extent and how should we be educating young people to adjust themselves to their environment, and to what extent and how should we be educating them to adjust their environment to themselves? This is a matter that is not entirely in the hands of educators to decide, for if young people are sufficiently dissatisfied with the environment as they find it, and cannot learn through normal educational channels how to influence it, they will seek to do so outside of those channels. The schools must provide useful guidance on this matter if the changes that must take place are to occur non-destructively. If the schools cannot respond well enough to the demand for change, the social structure of which the schools are a part may become the target of revolutionary change (Adelson, 1968, p. 232).

American school systems are structured for the most part in such a manner as to be "ideally resistant to change" (Oettinger, 1969, p. 225). These systems succeed in "combining the rigidity of military service and the fragmentation of small business without either the centralized authority that can ultimately make the military move or the initiative and

flexibility of response enjoyed by the innovative entrepeneur" (Mesthene, 1970, p. 22).

Educational organizations must harness the forces within their own systems and in the larger environment that can set in process the changes that will make our school systems viable learning systems. Recently, John Gardner stated, ". . . All too often we are giving our young people cut flowers when we should be teaching them how to grow their own plants. We are stuffing their heads with the products of earlier innovations rather than teaching them to innovate."

One of the ways educational systems can begin to become more responsive to the demands of the environment is by adopting the organizational patterns and management concepts being developed by business, industry, and government. If our educational systems undertake the steps of incorporating program or project orientation in their organizations, adopting systems analysis in planning and decision-making activities and using participative management techniques, they are likely to increase their ability to respond to demands of the changing environment. These are not easy steps to take, but vital if we are to prevent chaos.

> The systems pattern provides a decision-shaping process that is open to human judgment and aesthetic guidance through use of tools right at hand. Each education agency must build for itself a flexible, decision-shaping, person-oriented system that will constantly adapt itself, grow, and develop in process orientation and operation, under control of a variety of feedback loops that carry information. Changing circumstances will thus naturally change the system inputs, and inevitably and quickly produce the changed outputs required (Minear, 1968, p. 145).

As we pointed out earlier, matrix organizations are by nature designed to cope with the change and the future. Current and future problems are integrative aspects of the organization. There is a constant

definition of new goals and objectives to meet change needs. Incorporating a program or project orientation in educational systems means a constant redefinition of educational goals and objectives and ways of achieving them. Tradition is eliminated as the rationale for operating and effectiveness becomes the norm. Educational systems that are program/project oriented are more likely to produce individuals capable of dealing with the environment of the future (growing their own plants), because they reflect in their operation the values and norms that foster inquiry, alternative avenues to problem solution, and adaptability. Concepts such as relativity, probability, risk, uncertainty, contingency, multiple causality, multiple alternatives, differences and nonsymmetrical relationships, etc., become operationally embedded in such organizations and affect those "passing through."

The structural changes implied in adapting a matrix pattern of organization to current educational systems must be accompanied by functional changes in management that will compliment a structure designed to respond to and cultivate change. Educational planning and decision processes can be improved through employing techniques such as systems analysis and participative management.

The comprehensive, rational, and hopefully creative analyses of educational goals viewed in societal perspective that can result from systems analysis should provide a much better basis for educational planning and decision making. With assumptions made explicit, objectives and criteria clearly defined, and alternative courses of action compared for possible consequences, educators can approach educational change from a rational as well as a gut-level perspective. Systems analysis can help generate alternatives by processes that are accessible to critical examination, capable

of replication by others, and modifiable as new information becomes available. Systems analysis can take some of the hocus-pocus of educational decision making.

Employing participative management techniques in educational organizations will mean a drastic change for some educational systems and only slight changes in others. Using groups of parents, teachers, students, knowledge-area experts, and school administrators to search for problems, plan for the future, specify objectives, propose alternative routes for achievement, and make decisions will probably mean educational programs that are closer reflections of current and future change needs.

In educational systems there may be some need to prepare teachers, parents, and students for the new roles they will have to assume if they are to be involved in the group decision procedures. Traditionally, educational systems have operated under authoritarian management, and as a result, individuals may not readily accept their new participative roles in educational planning and decision making. Gottlieb and Brookover (1966) concluded from an investigation of Michigan public school teachers that teachers have come to accept a role that does not include active participation in educational decisions. "In other words, the public school teacher does not perceive of herself as someone who should and can make decisions about educational innovations. . ." (p. 123). It is obvious, however, that teachers should be included in educational planning and decision groups. In conjunction with other interested and knowledgeable individuals, teachers can help develop educational programs that better fit the needs of the learner of today and tomorrow.

Participative management in education is becoming a necessity. It is no longer possible for a single school administrator to keep abreast of all

the changes (both technological and social) that are going to require and/or promote change in education. Groups of individuals selected on the basis of their knowledges, competencies, and skills will have to undertake the process of analyzing educational problems, gathering information about the problems, analyzing the information, and proposing alternative solutions.

Educational systems must take some action or be deluged by the forces for change. We feel the steps suggested here are among the most likely to produce more responsive and innovative educational concepts. If you are interested in pursuing these subjects in more depth, the following readings may prove "enlightening."

Suggested Readings

On Change:

Warren G. Bennis and Philip E. Slater, The Temporary Society (New York: Harper & Row, 1968).

Kenneth Boulding, The Meaning of the 20th Century: The Great Transition (New York: Harper & Row, 1964).

Peter F. Drucker, The Age of Discontinuity (New York: Harper & Row, 1969).

Michael Harrington, The Accidental Century (Baltimore: Penguin Books, 1965).

Emmanuel G. Mesthene, Technological Change: Its Impact on Man and Society (Cambridge: Harvard University Press, 1970).

Everett M. Rogers with Floyd Shoemaker, Communication of Innovations: A Cross-Cultural Approach (Glencoe, Free Press, in press).

On Change and Education:

Educational Policy Research Center, Alternative Futures and Educational Policy, Stanford Research Institute, 1970.

Willis W. Harman, The Nature of Our Changing Society: Implications for Schools, Stanford Research Institute, Educational Policy Research Center, 1969.

Ronald G. Havelock, A Guide to Innovation in Education (Ann Arbor: Institute for Social Research, Center for Research on the Utilization of Scientific Knowledge, 1970).

Donald R. Miller, A System Approach to Planned Change in Public Education, Volume I--An Adaptive Framework for Public Education and Educational Management (Burlingame, Calif.: OPERATION PEP, 1970).

Donald R. Miller, A System Approach to Planned Change in Public Education, Volume II--A Strategy for Planned Change in Public Education (Burlingame, Calif.: OPERATION PEP, 1970).

Everett M. Rogers and Lynne Svenning, Managing Change (Burlingame, Calif.: OPERATION PEP, 1969).

Warren L. Ziegler, An Approach to the Futures--Perspective in American Education (Syracuse, University Research Corporation, Educational Policy Research Center, 1970).

The Designing Education for the Future Series published by Citation Press, New York.

(1) Edgar L. Morphet and Charles O. Ryan, eds., Prospective Changes in Society by 1980, 1966.

(2) Edgar L. Morphet and Charles O. Ryan, eds., Implications for Education of Prospective Changes in Society, 1967.

(3) Edgar L. Morphet and David L. Jesser, eds., Planning for Effective Utilization of Technology in Education, 1968.

(4) Edgar L. Morphet and David L. Jesser, eds., Emerging Designs for Education, 1968.

On New Organizational Patterns:

Warren G. Bennis, Changing Organizations (New York: McGraw-Hill Book Co., 1966).

David I. Cleland and William R. King, Systems, Organizations, Analysis Management: A Book of Readings (New York: McGraw-Hill Book Co., 1969).

David I. Cleland and William R. King, Systems Analysis and Project Management (New York: McGraw-Hill Book Co., 1968).

Daniel Katz and Robert L. Kahn, The Social Psychology of Organizations (New York: John Wiley, 1966).

Sheldon Varney, Considerations for the Development of Improved Organization Structures and Managerial Relations in PPB Systems (Burlingame, Calif.: OPERATION PEP, 1970).

On Management Concepts:

John Evans, The Evolving Role of Systems Analysis in Educational Management (Burlingame, Calif.: OPERATION PEP, 1970).

Oliver R. Gibson, A General Systems Approach to Decision-Making, paper presented as part of the series General Systems Theory and Education, at the Eleventh Annual General Meeting of the Society for General Systems Research, American Association on the Advancement of Science, Berkeley, California, December, 1965.

Rensis Likert, The Human Organization (New York: McGraw-Hill Book Co., 1965).

Rensis Likert, New Patterns of Management (New York: McGraw-Hill Book Co., 1961).

Matthew Miles, Innovative Climates in Educational Organizations, Stanford Research Institute, 1970.

Donald R. Miller, et al, A Manager's Guide to Objectives (Burlingame, Calif.: OPERATION PEP, 1969).

CHAPTER II

THE COLLECTIVE DECISION PROCESS IN THE ORGANIZATIONAL CONTEXT

> The decision process in education is a cornerstone for the building of an adaptive society. This process, including planning, policy setting, and decision making is currently undergoing some encouraging change. This is important because to remain viable and vital, education must be a part of the accelerating dynamism of social change. The information required for adapting to change is greater than for operating in a stable condition. Improving the quality of decision making will therefore require a growing investment in information gathering, processing, dissemination, and use (Adelson, 1968, p. 233).

"The school system has its choice: change well and willingly (via good decision processes) or be progressively invaded or displaced" (Adelson, 1968, p. 248). Underlying the pleas for new organizational patterns and management techniques in the preceding chapter is the ultimate goal of improving the educational decision process.

The Decision Process

A decision, whether made by an individual or a group, whether based on information or intuition, whether arrived at through rational process or by impulse, whether routine or creative, means choice of one alternative and

the exclusion of others. Literally, decision means cut. When we choose one alternative to the exclusion of others, we are actually separating this alternative from all others, cutting it off from the past, and making a commitment to follow it into the future. We are breaking from the past in order to alter the future, to follow one route rather than another to achieve some desired end or future state.

Decision always involves exclusion and uncertainty. Decisions are only possible when several distinct and mutually exclusive acts appear available to the decision-making unit. If each possible alternative has a certain outcome, and if all outcomes can be ordered according to greater or lesser desirability, then the choice among alternatives will not involve decision, but rather selection of that alternative which will produce the most desirable outcome. Real decision occurs only when we cannot determine with certainty the outcome of the alternatives, and when other alternatives are excluded or limited by choice of one. ". . . if a decision is real there can be no basis of a predictive theory of history, there can be no reliable laws of historical cause and effect, nothing to tell the decision-maker that if he presses this or that political or economic button the consequences will certainly be just such and such" (Schackle, 1961, p. 271). "Decision . . . is choice, but not choice in the face of perfect foreknowledge, not choice in the face of complete ignorance, . . . [but] choice in the face of bounded uncertainty" (Schackle, 1961, p. 5). Uncertainty in the decision process is bounded by information, perception, imagination, expectation, and anticipation; in essence by our "humanness."

Decisions, which are events (Gibson, 1965, p. 6), occur as a result of decision processes, which vary in complexity, rationality, length of time and systematization. The variance in process is due (among other

things) to: the nature of the impetus or stimulus creating the need for decision; the nature of the decision, the characteristics (combined or individual) of the decision-making unit; the magnitude, importance, and value of the decision to the decison maker(s); the state of the internal and external environments of the system(s) making and being affected by the decision; the availability of information and resources; and the degree of uncertainty and risk accompanying the choice.

The decision process is an integral part of every human action system, be it individual, informal group, or formal organization. The decision process in the context of formal organizations (particularly educational ones) is the grist for our mill.

The Decision Process in Organizational Context

Of necessity, decision processes in organizations are likely to be more structured, more complex, and more formalized than individual choice processes. The decision process is set in motion by an impetus or stimulus creating the need for choice and/or departure from past behavior(s). The decision stimulus can be anything from one man's curiosity to crises in the organization's environment. An awareness of a need for action, apparent problems, unresolved questions, conflicts, new information can all set decision processes in gear.

Hopefully, organizational decision processes are somewhat systematic, objective, and rational. Because organizational decisions are likely to have far-reaching effects on the behavior of many individuals, as well as the larger social system of which the organization is a part, the process by which they are reached should combine rationality and creativity with

the "best" information and decision-making techniques available. A brief examination of a systematic organizational decision process will provide basis for further discussion.

A Systematic Organizational Decision Process

The organizational decision process usually involves problem finding, problem solving, and decision making. Decision making can only occur after alternative courses of action have been developed. Therefore, we shall attempt to outline a systematic process that results in decision, rather than focus only on the decision making or choice aspect. In other words, we view decision making as a final aspect of a more inclusive decision process including: (1) recognizing the need for decision, (2) specifying preliminary objectives (including a criterion component) for the decision to be made, (3) searching for the "real" problem and/or needs, (4) specifying the problem and/or needs and redefining the decision objectives, including criteria (if necessary), (5) gathering information, (6) organizing and communicating the information, (7) analyzing the problem and/or needs in light of information, (8) respecifying decision objectives and criteria (if necessary), (9) generating possible alternatives, (10) evaluating possible alternatives and examining probable consequences of each, (11) testing each of the alternatives against the decision criteria, (12) determining the acceptability of each of the alternatives to those involved and effected, and finally, (13) making a choice (decision). (Some people would include the implementation of the decision in the basic process, but our focus is on the process leading to the choice.)

1. Recognizing the need for a decision. The need for a decision is

usually prompted by a dissatisfaction with some existing state or with the prospect of a probable future state. That is, a change in the current course of action must be made to promote a more acceptable present and/or future state. The dissatisfaction can be felt by elements inside the system and/or outside the system. Action results most quickly when the decision stimulus is experienced by those holding decision-making power. Sometimes, those who have the authority and/or power to initiate the process that will result in a decision to change are slow to sense states of dissatisfaction.

Most "established"* organizations or systems lack "change" sensitivity. Age (in most systems) carries with it desensitizing agents; for that reason some type of monitoring system is essential. A sensor mechanism built into an organization, in the form of a planning or change committee, is one way of building change responsiveness into the organization. Whatever the monitoring mechanism, there must be a flow of information into the decision-making mechanism of the system about the system and its environment, about the operation of the variables related to the outcomes specified through the value system (Gibson, 1965, p. 7). The "impetus" for change must be within the vision of the individuals who are responsible for intiating decision action. Many of the demonstrations of the 60's and 70's can be considered as attempts to get organizational decision makers to recognize states of dissatisfaction and the need for change decisions.

2. Specifying a goal or desired end state to be reached as a result of the decision(s). Assuming recognition of a need to act to "improve"

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*By established, we merely mean those older organizations who have been operating long enough to have formed "organizational habits of behavior" that are supported by rules and regulations.

present or possible future conditions, policy objective(s) that generally describe the end state to be achieved through the actions resulting from ensuing decisions must be specified. This initial definition of a desired end state must be general in nature, yet give a clear indication of the criteria that will "indicate that the problem has been resolved or the need met." It must not limit the analysis of needs or problems or the generation of alternatives. For example, a college president recognizes the need to deal with student dissent. His policy statement, which sets the framework for the decision maker, may read, "Within the next two years we must eliminate violent student dissent, and learn to deal constructively with nonviolent dissensions." This statement sets a time frame, specifies the problem area (dealing with student dissent) and the desired end states without limiting the analysis of the problem or the development of alternative solutions.

From this general statement of purpose, more specific objectives can be defined later in the decision process.

3. Locating the problem in an environmental and organizational context. Considerable time should be spent on exploring, choosing, and isolating a starting point for assessment of the status quo. This often requires the suppression of the natural tendency in individuals to gravitate toward solutions (Maier, 1963, p. 50). Finding the "real" problem to be resolved or assessing the needs is a step many decision-making units fail to recognize. The general problem area specified in most goal statements is not sufficiently refined to permit systematic analysis. Before analysis begins, the problem must be located in both an environmental and organizational context, and within a decision-making unit's sphere of influence. Using our example of student dissent: Is the problem really student dissent,

or is this a manifestation of deeper-rooted problems both within the university system and in larger environment? Maybe the problem is not student dissent so much as it is outdated educational policies of the university.

4. Specifying the objectives and decision criteria. Once the problem area or needs have been identified, the specific needs that must be met as a result of the decision can be stated clearly and concisely. The statement of objectives can effect the manner in which the problem or needs are explored, the alternatives developed, and the decisions made. This initial statement of objectives serves as the communication referent for all phases of the process, as well as all members of the decision-making team.

One of the most important aspects of specifying objectives is the development of criteria against which the alternatives can be tested and the final decision evaluated.

5. Gathering information on the problem and its context. All members of the decision-making unit must have a common body of knowledge from which needs assessment and problem analysis can proceed. A knowledge bank of relevant, timely, and accurate information must be created. Modern information storage and retrieval systems are a boon to this phase of the decision process.

6. Organizing and communicating information. Information is valuable only if it can be brought to bear in the next phases of the decision process. Organized and diffused in a manner conducive to utilization, information both on the decision situation and possible alternatives provides decision makers with a foundation for action.

7. Assessing and analyzing the situation requiring decision. The analysis of the situation requiring decision begins with an examination of

relevant information. This in-depth analysis of needs and/or problems will provide the basis for the development of alternatives from which the final choice will be made. The effectiveness of the final decisior, then, rests heavily on the validity and reliability of this diagnostic phase.

8. Respecifying decision objectives and criteria. The decision objectives and criteria are, in turn, examined in light of in-depth needs assessment or problem analysis. This examination may lead to a respecification of objectives and criteria.

9. Generating alternatives. Generating alternatives from which to choose in the final decision involves separating idea generation from idea evaluation. Generating possible alternatives involves: invention, discovery, creativity, development, synthesis.

10. Evaluating the proposed alternatives. Evaluation of alternatives does not begin until the generating capability has been exhausted and all readily apparent possible alternatives have been proposed. The most probable alternatives are then culled from the field of possible alternatives. Final evaluation of probable alternatives is made against preestablished criteria, and does not take place until the methods-means, costs, and probable consequences of each satisfactory alternative have been estimated.

11. Testing against criteria. Each of the satisfactory alternatives is then compared to previously specified decision criteria to determine its ability to meet the objectives.

12. Determining "acceptability" of alternatives. In making any choice, it is valuable to know how those individuals who will be affected and responsible for carrying out the decision feel about each of the alternatives. The amount of commitment that can be made by individuals to each

of the alternatives will, in part, determine the effectiveness of the alternatives.

13. Decide. The decision-making body chooses from among those alternatives that prove satisfactory, meet the prespecified decision criteria, and are acceptable to those concerned. The decision should be put in writing to serve as a communication referent for further decisions and implementation activities.

The decision process includes diagnostic processes, developmental processes, and analytical choice processes.

The Value of Collective Decision Making in Organizations

The decision process is affected by the decision-making structures and mechanisms of the system. Most systems have established structures specifying who makes what kinds of decisions, as well as elements that facilitate or constrain decision making through control of information and resource allocation.

The increasing options or courses of action available to organizations in a modern, industrialized, and knowledge-oriented society make it necessary to reassess decision-making structures and mechanisms. The social pressures placed on both public and private organizations are certainly far greater and more complicated than they were in the past. The complexity of the social situation requires broader, more encompassing decision-making structures. Group or decision-making collectivities within organizations is one approach to restructuring organizational decision making with a broader base. Taking decision-making power from the hands of individual "powerful" bureaucrats and placing it with groups of individuals who can

coordinate their efforts to anticipate and find problems and/or needs, diagnose and analyze problems and/or needs, generate alternatives, evaluate alternatives, and exercise collective judgment in the choice of viable alternatives is one way of coping with complexity too great for any one individual to envision accurately.

Collective decision making can (does not necessarily):

1. Bring a wider range of information, reason, attitudes, opinions, and skills to bear in the decision. By increasing the number of individuals involved in the decision process, human biases and limitations can be partially overcome through the compensating strengths of the others involved. Small group research shows that when tasks require creativity, a broad information base, division of labor, and reduction of random error, groups are likely to be more effective than individuals (Collins and Guetzkow, 1964, pp. 24-58). Most policy and managerial decision making involves the aforementioned factors, and might therefore be improved through collective efforts. "It is impossible for the behavior of a single, isolated individual to reach any high degree of rationality . . ." (Simon, 1957, p. 79); therefore, in the interests of improving rationality it may be wise to integrate several individuals in the decision process. Groups, by virtue of individual variance, are likely to see more aspects of a situation, ask more questions, obtain more information, and thereby have a better base for more effective decisions.

2. Increase positive involvement and motivation of organizational members. When members of an organization are committed to the goals and actions of that organization, they are more likely to expend their energies in constructive efforts to achieve those goals. Apathy or negative involvement on the part of organization members means low levels of energy output

(just enough) or energy directed toward the subversion of organizational goals. Therefore, involving individuals through collective decision-making structures may increase the amount of energy being directed toward organizational goals. People who feel they are significantly involved in the operation, management, and policy-setting structures of the organization are likely to be better informed, more willing to accept organizational decisions, and more motivated to see that those decisions are implemented successfully. Participation in decision processes can increase the individual commitment to and sense of responsibility for organizational goals. "Joint decision making can be satisfying to the participants and can lead to better organizational decisions . . ." (Applewhite, 1965, p. 65).

3. Provide an environment for the constructive use of conflict. Conflict and differences of opinion are essential to progress. A working group provides a structure for utilizing conflict to produce better alternatives and decisions. Conflict can motivate constructive thought and analysis. Under the pressure of opposing points of view, individuals strive to produce more and better quality information to support their positions. Similarly, conflict can motivate a more careful analysis of available information and more thorough appraisal of alternatives. Conflict, if kept on a substantive level, can be a positive force for improved decision making.

4. Produce alternatives and/or decisions that are more closely attuned to reality. By drawing from a wider range of perspectives there is a greater probability that alternatives or decisions will more closely reflect the complexities of the larger system and, thereby, be more appropriate.

5. Help overcome the narrow perspectives resulting from increased

specialization. We tend to perceive in light of that which we know. Our knowledge frames have become increasingly narrow. By bringing to bear an increased number of specialty knowledges in an interaction situation, the disadvantages of specialization are overcome and the advantages brought to fruition.

6. Equalize sources of influence and/or power. Decisions that result from group efforts mean power and influence distributed over a greater number of people. Why, you may ask, is there a need to distribute influence and power? Traditionally, the American value system has been individualistically oriented, giving free rein to individual enterprise. However, as the society becomes more complex, with increased interfacing of its parts, it becomes more necessary to assume a public or social viewpoint. That is, a new balance must be struck between individual rights and the public interest. One way of doing this is through collective decision making and action. When a decision affects the public, as most organizational decisions do, they should be made from a collective base. ". . . more and more decisions that could once be left to private decision makers because their effects were limited in impact and extent, must now be taken in public ways, by society as a whole" (Mesthene, 1970, p. 66). Collective decision-making structures are one way of ensuring more socially viable decisions.

7. Increase willingness to risk. Decisions always involve uncertainty. Uncertainty creates special obligations and possibilities for collective decision making (Zeckhauser, 1969, pp. 149-166). Groups have been found to take greater risks than individuals (Applewhite, 1965, p. 66), probably because the risk can be spread among members of the group. Decisions for change and progress contain considerable risk and are,

therefore, more likely to be made if a group shares responsibility for them.

The collective decision process in organization offers improvements over individual decision making only if: (1) "scientific," systematic, rational behavior is encouraged in addition to emotional involvement; (2) those involved feel the problem and decision before them is significant; (3) the group decision is valued and implemented; (4) the nature of the problem requires alternative insights; (5) individuals involved bring varying skills, attitudes, and opinions to bear; and (6) time permits.

Because more than one individual is involved, most decision-making groups can benefit from management designed to coordinate, guide, and stimulate creative group processes. The interaction involved in group activities brings with it problems that don't arise when individuals work on their own.

Sometimes work groups are able to function without much guidance and/or control from a group manager. Most often, however, there are times in the life of all work groups that a group manager can intervene to ensure maximum production for the amount of effort being devoted to the task. Breakdowns in communication, interpersonal conflict, ambiguity of direction, poor work environment are some of the problems that a group manager can help overcome. Guidelines for managing group processes are offered in Chapter IV. There is also an Appendix that offers a series of propositions drawn from small group research that can provide insights into how to: construct decision groups, analyze performance problems, avoid problems before they arise, and promote effective communication. These research propositions can also help individuals set "realistic" expectations about group decision processes.

Organizational decision-making structures, whether individual or

collective, interact with many other factors to influence the organizational decision processes.

Factors Influencing the Organizational Decision Process

Many variables interact to affect the decision process in an organization: the nature of the problem and the type of decision required, the characteristics (combined or individual) of the decision-making unit, the state of the internal and external environment, the availability of information and resources, the magnitude or value of the decision to the decision-making unit, etc. In fact, it is difficult to accurately envision the web of variables and their interrelationships as they operate in the organizational decision process. Even the most complex conceptual models of the organizational decision process are a gross simplification of reality. The following discussion represents an even more limited view of the subject, but hopefully offers some insights into some of the more important factors that should be taken into consideration when undertaking the task of improving a system's decision processes.

Types of Organizational Decisions

Within most organizations it is easy to discern three broad categories of decisions: (1) policy decisions, (2) managerial decisions, and (3) operational decisions. The differentiation between categories results from the significance of the decisions for organizational structure and functioning. The variance in the significance of the decision is a variable

influencing the amount of time allotted, the process followed, and often the number and kind of people involved.

Policy Decisions

In most organizations, the legislative and executive bodies of the organization hold sway over those decisions determining the basic course(s) of action an organization will take, or the policy-making functions of the organization.

"Organizational policies are abstractions or generalizations about organizational behavior, at a level which involves the structure of the organization" (Katz and Kahn, 1966, p. 259). Policy statements can be made either retrospectively as recognitions of existing practices, or as statements of what organizational behavior shall be. It cannot be said that a policy decision has been made when a policy statement is issued after the fact. Changes in policy due to the cumulation of day-to-day managerial and/or operational decisions do not involve decision. Policy recognition involves only the decision to formally recognize what is.

Policy decisions occur as the result of organization efforts to determine future courses of action. They deal by nature, with what will be. They form the basis of strategic planning. There are basically two types of policy decisions: (1) those concerned with the formulation of substantive goals (the ends) and (2) those concerned with the formulation of the procedures and devices for achieving goals (the methods-means) and evaluating performance.

Policy Decisions on Goals and Objectives--What. Policy decisions on organizational goals and objectives are guides to future organizational

behavior and decisions. They specify what the organization is aiming for, the end states to which organizational efforts can be directed. ". . . goal-formulating decisions . . . must be general enough to transcend the specific case; they must hold over time for many cases; and they must affect a substantial part of organizational space of structure" (Katz and Kahn, 1966, p. 260). For example, the decision of a school board to set "zero rejects" as part of its educational policy affects substantial elements of the educational space and structure.

Policy Decisions on Procedures and Evaluation--How. Policy decisions on methods and means are basically decisions on the general strategies for attaining organizational goals. These are the general rules or guidelines that: (1) commit an organization to follow a particular path toward achieving its goals, (2) determine how the organization handles external problems and meets internal ones, and (3) assesses progress towards goals.

For example, two school districts may have the same objective of racial and ethnic integration; one school may have made a policy decision to use busing as their basic strategy for achieving the desired end state, while the other may have decided on a strategy of reorganizing school programs and spaces to achieve integration.

Policy decisions on procedures and evaluation determine "how" the organization goes about determining and achieving its ends and "how" these efforts are evaluated. For example, a decision to incorporate planning techniques and systems analysis as a means of ensuring a more change-responsive organization is a procedural policy decision. The decision to use verifiable performance objectives as a means of evaluating progress is an example of a procedural decision in the area of evaluation.

Policy-level decisions alter or adjust the basic organizational ends and methods-means in light of internal and external environments. Because they are the fundamental supports of the organization, policy-level decisions are more likely to require complex and varied resources (information, people, opinions, etc.), considerable time and more complex processes. They are more difficult to change once established, as they form the underlying structure of the organization and must be made and put into operation carefully to prevent organizational chaos.

Managerial Decisions

Policy decisions must be translated into action. Managerial decisions are choices that must be made as a result of available alternative avenues to achieving the desired end states specified in policy decisions. Managerial decisions guide, direct, administer, and control organization efforts to reach organizational goals. They translate generalities into specifics by selecting the program, project, and performance objectives that will most likely achieve the policy goals and objectives in the most efficient and effective manner possible.

Managerial decisions determine what and how the parts of the organization will contribute to the total organization's goals and/or objectives.

Where policy decisions affect organizational structures, managerial decisions affect their functions.

Operational Decisions

Once the organizational inputs and processes have been set in motion there are decisions that must be made to keep organizational performance in

line with standards specified for that performance. These may be relatively simple decisions involving only routine administration or application of existing policies to on-going operations, or more complex decisions involving considerable organizational risk.

Operational decisions are action decisions made at all levels of the organization. They range from a teacher's decision to show a movie to a school board's decision to fire a teacher.

Operational decisions can be thought of as choices that keep the organization on the "right" course. Timing is a critical factor in determining the effectiveness of operational decisions.

In order for individuals to make appropriate operational decisions, they must have knowledge of the course of action and knowledge of the standards of performance required to achieve organizational goals and objectives. Further, the individuals making these operational decisions must have confidence in both the ends and the means if the operational decisions made are going to facilitate achievement of the end state.

Operational decision situations raise the question of how much can be decided without consulting with a higher level of control and authority.

Decision-Making Cycle

Policy, managerial, and operational decisions are tied together in a continuous cycle of decision making with each influencing the other through reciporcal feedback loops (Figure 1). It cannot be assumed that influence is always exerted in a top-down manner. Operational decisions are often vital variables in policy and managerial decisions; at times, determing the course of higher level decisions.

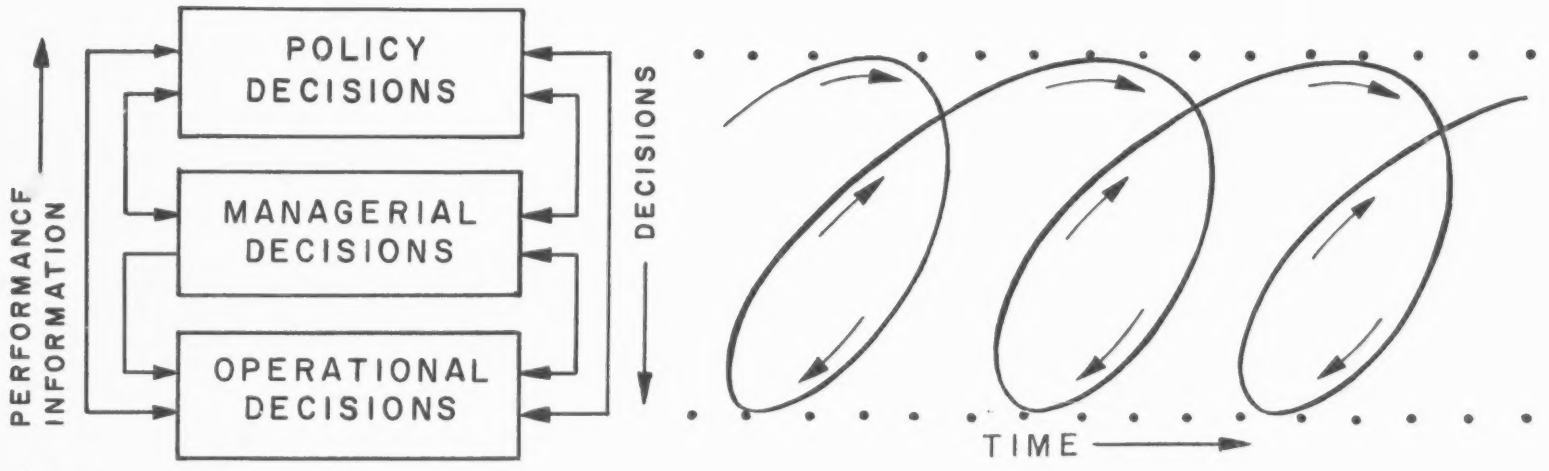


Figure 1: Decision Cycle, after Timms, 1967, p. 60.

The type of organizational decision being made often influences the process through which it is arrived at. Operational decisions are often made on the basis of individual assessment and discretion within a short period of time, while managerial and policy decisions usually result from collective efforts over a longer time frame.

Closely related to the types of decisions are the dimensions of the decisions which also influence the process by which they are reached.

Dimensions of a Decision

Katz and Kahn (1966, p. 259) suggest three dimensions of a decision: (1) level of generality or abstraction, (2) the internal and external aspects of the organization affected (area of impact), and (3) the duration of decision. These three aspects of a decision help determine its "weight"

and organizational importance, thus influence the "care" and the process by which the decision is reached.

Level of Generality or Abstraction

The level of generality or abstraction is often highly correlated with the type of decision being made--policy, managerial, or operational. Decisions reflecting a middle-range generality probably require the most thorough and detailed diagnostic, developmental, and analytical choice processes. It is at this level that detailed analyses of and comparisons between alternatives are made.

An extremely general or abstract statement of policy, such as "Our policy is to contribute our very best to facilitate student self-development," probably does not result from a detailed and/or systematically analytical decision process. However, as the necessary decisions are made to translate this policy into action, a more systematic and involved process is likely to be followed. Perhaps organizational decision making would be improved if a more systematic approach to policy making were adopted.

Area of Impact

The amount of internal and external organizational space affected by the decision also influences the decision process. The area of impact can indicate the number and kinds of people that should be involved in the decision process. For example, important policy decisions in a school affect both large amounts of internal and external space. Therefore, when making such decisions, it might be wise to include representatives from both within the organizaion and those in the larger school community.

Duration of the Decision

The length of time for which a decision will hold is also an influential variable. Decisions that are binding on organizational efforts over long periods of time are probably made with more care than those that hold only temporarily.

It is difficult to isolate the dimensions of a decision and make meaningful statements about the influence of each on the decision process. Realistically, it is the interaction-influence of all three dimensions in concert that affect the process by which the decision should be or is reached.

The Decision Environment

The decision environment forms the frame of reference for the decision. All decisions have purpose, but this purpose can have no meaning unless defined in terms of an environment. The environment of decision consists of:

> . . . atoms and molecules, agglomerations of things in motion, alive; of mind and emotions; of physical laws and social laws; social ideas; norms of actions, of forces and resistances. Their number is infinite and they are always present. They are also always changing. They are meaningless in their variety and changes except as discriminated in the light of purpose. They are viewed as static facts, if the change is not significant from the viewpoint of purpose, or as both static and dynamic facts (Barnard, 1964, p. 84).

The decision environment is so complex that certain facts are, by virtue of their complexity or distance, immaterial and/or irrelevant. Certain aspects, however, are relevant in that they will either facilitate or hinder the achievement of the objectives defined by the decision.

> As soon as that discrimination takes place, decision is in bud. It is in the state of selecting among alternatives. These alternatives are either to utilize favorable factors, to eliminate or circumvent unfavorable ones, or to change the purpose. Note that if the decision is to deal with the environment, this automatically introduces new but more detailed purposes, the progeny, as it were, of the parent purpose; but if the decision is to change the purpose rather than deal with the environment, the parent is sterile. It is abandoned, and a new purpose is selected, thereby creating a new environment in light of that purpose (Barnard, 1964, p. 84).

The decision environment of educators is most often prespecified by traditionally oriented, socially and conservatively accepted norms, allowing little room for choices involving the creation of a new environment for educational decision making. Educational decisions and the resulting goals and objectives are made in light of a "current" environment defined for the most part by the realities of operation in a political process. The pressure of the environment (both internal and external) influences (not always for the better) the process involved in reaching decisions.

Immediate pressures can mean immediate solutions with little analysis of the problem and no comparison of alternative solutions. An impending crisis can short-circuit the decision process, causing actions to be taken without careful analysis of the problem or consequences of the solution. Katz and Kahn (1966, p. 275) cite an example of this.

> An example of a poor assessment of a problem and its consequences, made under such conditions of urgency, can be found in the actions of the Chancellor and the Board of Regents at a state university. These decision makers were faced with a possible witch hunt by a legislative committee. By imposing a special loyalty oath on all members of the faculty, the top administration hoped to forestall the investigation and prevent more repressive measures from the state legislature. But they failed to analyze the nature of the problem and to anticipate the consequences of this decision. Though the immediate faculty revolt which ensued was squelched, the divisionism within the university community and the reaction of the academic and scientific world seriously damaged the university for a number of years.

The urgency of the felt need and the amount of pressure either from internal or external sources can influence the decision process and the quality of the resulting decision.

Internal Characteristics

System characteristics such as organizational patterns and structures, management philosophies, and attitudes of system members influence and are influenced by the decision processes of the system. These factors might all be lumped under the title organizational climate. Taguiri and Litwin (1968, p. 27) define this concept as follows:

> Organization climate is a relatively enduring quality of the internal environment of an organization that (a) is experienced by its members, (b) influences their behavior and (c) can be described in terms of the values of a particular set of characteristics (or attributes) of the organization.

We might think of a value climate, interpersonal climate, and a task climate in which the leadership style followed in the organization or in parts of the organization influences the methods of making decisions, as well as who participates. The amount of structure, type of performance standards set, delegation of responsibility, motivation techniques, amount of supports, manner of dealing with conflict, amount of risk and involvement tolerated or encouraged, and organizational spirit (trust, good fellowship), all are dimensions of organizational climate that affect and are affected by decision processes. The congruity and/or compatibility of organizational elements and leadership styles are also influential variables.

The Interaction Effect of the Collective Decision-Making Unit and the Organization

Collective decision-making units within a larger organization can be

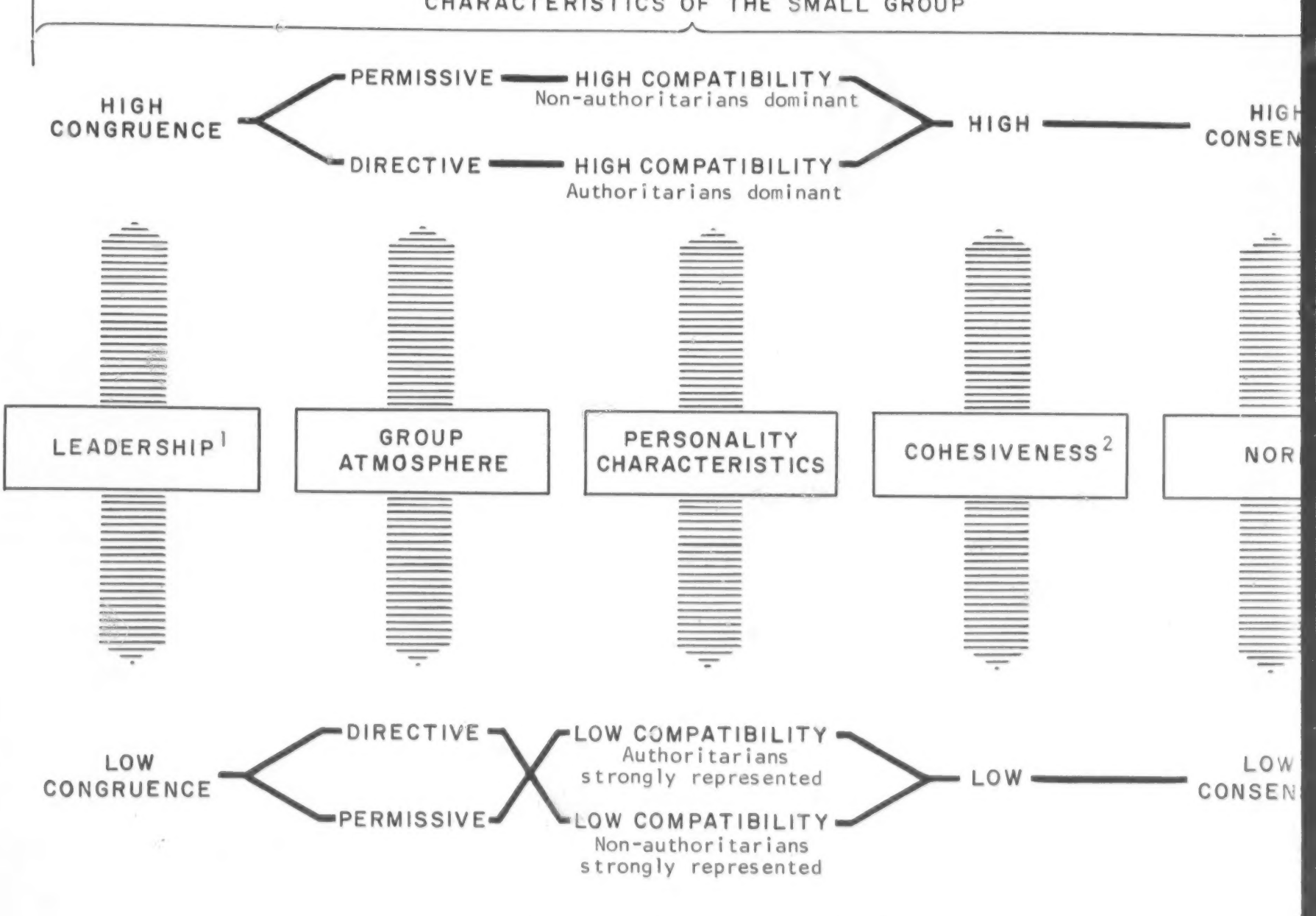
thought of as micro-systems within a macro-system. The degree of congruity and compatibility between the structural norms and styles of the organization and those of the collective decision-making units influence the performance of the decision-making units and in turn the quality of their decisions. Using Golembiewski's (1965, pp. 91 and 102) diagrams of the interrelationships between small groups and organizations (Figure 2), we can begin to see how the congruence of small group and organizational structure and style influences group performance. For example, in a decision-making group in which there is high consensus among members with respect to group norms, but low integration between the group structure and style and that of the organization, there is likely to be a low output from the group. Where there is high group consensus and high structural and style integration between the group and the organization, output is also likely to be high. The satisfaction of the participating members also varies in terms of the group output and the structural and style integration of the group and organization. Ideally, we are seeking optimum output and individual satisfaction.

External Characteristics

Most organizations exist within larger social systems in reciprocal interaction-influence relationships. The stresses and strains in the larger environment as well as the lack of them affect the needs for and process of decision within the organization.

As public service organizations, educational systems must be extremely sensitive to the happenings in the external environment.

> In one respect the decision problem in private organizations is much simpler than in public agencies. The private organization



* HIGH STRUCTURAL INTEGRATION PLUS HIGH STYLE INT

DEFINITIONS

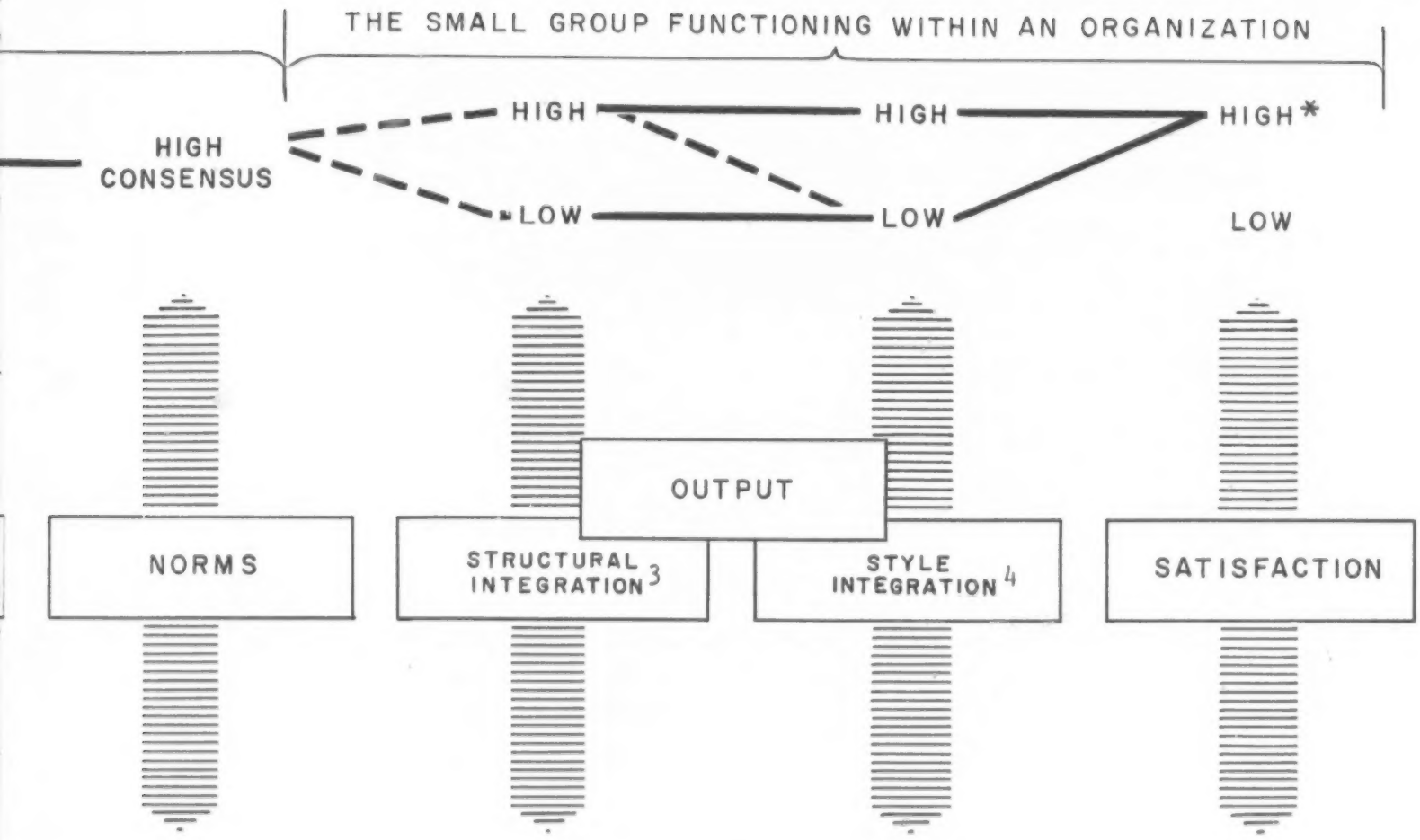
1. LEADERSHIP--Individual prominence aiding group attainment and sociability.

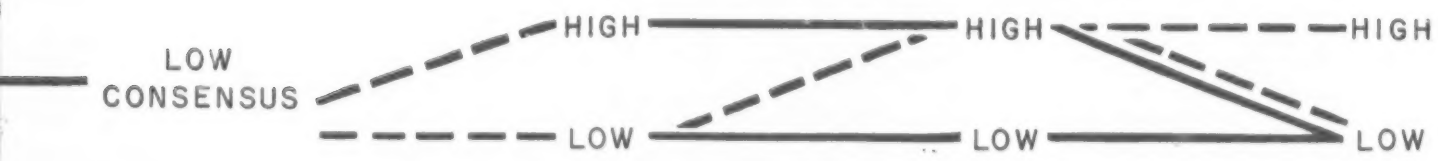
2. COHESIVENESS--Prestige of membership; prestige of task; liking of members.

3. STRUCTURAL INTEGRATION--The congruence of group structure and formal organization structure, as measured by congruence of rank on informal leadership and formal rank.

4. STYLE INTEGRATION--Congruence of group norms and formal expectations, policies, and procedures, as measured by output and participant satisfaction.

Figure 2: A Simplified Model of the Small Group in an Organizational Context (





H STYLE INTEGRATION ➡ OPTIMUM TASK AND SOCIO-EMOTIONAL PERFORMANCE

nal Context (Adapted from Golembiewski, 1965, pp. 91 and 102).

> is expected to take into consideration only those consequences of the decision which affect it, while the public agency must weigh the decision in terms of some comprehensive system of public and community values (Simon, 1947, p. 69).

The socio-economic aspects of the community serviced by the school, such as level of education, types of occupations, the degree of heterogeneity, economic status, political attitudes, values held in esteem are factors that interact with educational decision processes. The amount and kinds of resources available to educational decision makers from the external environment further affect the decision process. Community climate, including the degree of conflict or stability in the community and the degree of passivity or activity of community members in community organizations, is another influencing factor.

The environmental characteristics entering into the functional aspects of organizational decision making are numerous. We have highlighted a few of the variables that can be influential and at the same time managed to improve the effectiveness of organizational decisions.

The Degree of Uncertainty and/or Risk Accompanying the Decision

Decision making is often an uncomfortable experience. The discomfort stems from the fact that situations often require action when it is impossible to analyze what will happen as a result of choosing any given alternative. There exist three knowledge states of choice-outcome relations (March and Simon, 1959, p. 137).

(a) Certainty: It is assumed that there is complete and accurate knowledge of the consequences of each choice.
(b) Uncertainty: The consequences of each choice cannot be defined by a correspondence relationship even within a probabilistic framework.

(c) Risk: It is assumed that accurate knowledge about the probability distribution of the consequences of each alternative exists.

The decision process is influenced by the perceived degree of certainty about the choice-consequence relationships of the available alternatives. For example, if the decision maker(s) assume that complete and accurate knowledge and information is available, they are likely to spend far more time in gathering that information than decision makers who assume an uncertain condition. Uncertainty in the decision process means decision makers must be more inventive, using only the rough guidelines of skill and experience as aids in making the decision. Of necessity in cases of uncertainty, the decision process must always be more intuitive than when risk can be calculated or certainty is present.

The more uncertainty involved in the decision process the more likely greater numbers of people should be involved in the process. There is a need for more collective action in the face of unknowns, a need to spread the risk involved in making decisions for the future.

The Human Element

We are still operating in an age where most decisions, other than the most routine, are made by human beings, either individually or collectively. This means that the "pre-decision sets" (including sex, intelligence, social status, education, motivations, beliefs, thinking patterns, degree of self-direction, etc.), as well as the immediate emotional-physical state (such things as anxiety, pain, anger, fatigue, sense of involvement) of the decision maker when involved in the decision process influence the decision process as well as the final decision (Dror, 1968, pp. 78-79).

Predecision Sets

The human decision maker brings to a decision situation a whole set of complex and interacting factors that influence the process by which he reaches decisions.

1. Position in Social Space. We all occupy a social space within a time frame. At different times we hold different positions in social space. The combined effect of past, present, and future social statuses affects the knowledge, experiences, attitudes, and judgments of the human decision maker. Position in a system or systems helps determine the amount and kind of knowledge we have and the standards and processes of judgment for evaluating that information. For example, by virtue of their "positions," a school principal and a school board member are exposed to different knowledge inputs (a principal is likely to have more access to student opinion and the school board member more access to political opinion) and use different criterion for evaluating decision alternatives.

2. Selective Attention, Perception, and Retention Mechanisms. Because the number of stimuli confronting the average human being are so great, he develops habits of selective attention, perception and retention influenced by his attitudes, opinions and beliefs, as well as social relationships. We hear, see, remember, believe what we want to hear, see, remember, believe. The human decision maker brings his selective mechanisms with him to the decision situation. These affect not only his basic being, but his evaluation of the information presented in the decision process, and his eventual choice.

3. Projection Mechanisms. Human beings have the tendency to project their own feelings and beliefs to others. This most often happens in the

absence of knowledge about the others. A decision maker(s) confronted with decision situations involving individuals highly different from himself (themselves) should find out as much as he (they) can about those individuals before making decisions, in order to avoid filling in knowledge gaps with his (their) own predispositions.

4. Thinking Patterns. Each decision maker carries within him habitualized thinking patterns. Certain thought patterns such as: global or undifferentiated thinking, dichotomized thinking (either-or), cognitive nearsightedness, and oversimplified notions of causality can operate as hindrances to effective decision making.

5. Education. Certainly the kinds of learning experiences in which the decision maker has been and is involved affects his approach and viewpoints in decision situations.

6. Motivation. People are motivated by different needs, the need to achieve, the need for affection, the need for power, etc. These factors influence individual behavior in the decision situation. For example, individuals motivated by the need for affection are more likely to consult with and seek the advice and approval of others in making decisions than those motivated by a need to achieve.

7. Openness of Belief Systems. Rokeach's research into the openness and closedness of individual value and belief systems indicates that the closed systems cause individuals to adhere rigidly to established values and beliefs. Such individuals in decision-making situations are likely to take extreme positions and permit little influence on their thinking and/or judgments.

8. Degree of Rationality.* Individuals also vary in the amount of rationality they bring to bear in decision making. The logical order with which an individual diagnoses and analyzes problems is something he brings with him.

These are but a few of the factors affecting the predecision set of a decision participant. The individual comes to the decision situation with certain skills, talents, creative abilities, analytical abilities, plus pressures from norms and values of significant others and significant reference groups. These predecision set factors all affect not only the final decision, but the kinds of information brought to bear and the kinds and amounts of alternatives generated.

State of Decider at Decision Time

"The decision making process is significantly influenced by the emotional-physical state of the decider while he makes the decisions . . ." (Dror, 1968, p. 78). A decision maker feeling tired and hungry is hardly able to exert his best attention and efforts on the issue at hand. Decision makers embroiled in heated emotional arguments are hardly likely to make rational assessments and judgments. Pressures of the moment whether they result from frustrations of coping with daily life or poorly controlled temperatures in the work space all influence decision making to some degree. Basically, the emotional-physical state of the decider influence his degree and kind of involvement in the decision process.

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*Rationality is discussed more fully in the following chapter.

Limits . . . But

> Man's decisions are limited by his humanness.
>
> Man lives in an environment about which his information is highly incomplete. Not only does he not know how to evaluate many of the alternatives facing him, he is not even aware of a considerable percentage of them. His perceptions are relatively limited; his powers of calculation and accuracy are less than those of a computer in many situations; his searching, data processing, and memory capacities are erratic. As the speed of transmission of stimuli and the volume of new stimuli increase, the limitations of the individual become more marked relative to society as a whole. Per se there is no indication that individual genius or perceptions have changed in an important manner for better or worse in the last few centuries, but the numbers of humans, the size of the body of knowledge, and the complexity of society have grown larger by orders of magnitude (Shubik, 1967, p. 772).

As numbers of people grow, amounts of knowledge increase, the pace of change becomes more rapid, the individual is less likely to be in a position to exercise free, reasonably well-informed, rational individual choice concerning much of his freedom (Shubik, 1967, p. 778).

Even within the framework of increasing human limitations (increasing in the sense that society is becoming more complex), the human element must not be lost. The communications and computer technologies that aid in obtaining and analyzing information must be harnessed to preserve and extend the role of human beings in decision making, not subsume it. The creativity and emotion of man are necessary ingredients in decisions that are responsive to man's needs.

The Decision Product

Decisions are the products of decision processes. How can we determine whether these "products" will do the job for which they were made? Many situations about which decisions are made are sufficiently complex to

preclude classifying decisions as correct or incorrect, right or wrong, good or bad. Decisions determine future courses of action, and the best test or evaluation of a decision is made in terms of results after implementation. Initial and in-process assessments of decision effectiveness are useful only in that they can help prevent implementation problems and promote action effectiveness.

Quality and Acceptability of the Decision

The objective quality of the decision as an appropriate response to the change needs of the organization is mediated by the acceptability of the decision to those persons who must carry out the actions implied in the decision.

The importance of separating these two dimensions of a decision becomes apparent when we realize even when a decision is inherently sound as a response to change needs, it will have varying degrees of effectiveness dependent upon the degree to which the executors of the decision understand and are committed to carrying it out.

Therefore, we might say that an effective decision (ED) is the product of its: (1) quality (Q) or objective nature; and (2) acceptability (A), attractiveness or desirability to persons who must work with the decision* (Maier, 1963, p. 16).

$$ED = Q \times A$$

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*As we pointed out earlier, participation in the decision process can promote greater acceptability of the final product.

Desirable Characteristics of a Decision Product

Several measures can be taken to ensure that once a decision has been made it can in turn serve as a communication referent and guide to action. Any organizational decision affecting the future action of the organization or any segment thereof should be put in writing. This written decision product should:

1. Be specified in clear, cogent, and concise terms.
2. Include a time specification that indicates when the decision is to be put into effect, and if possible, how long it will remain in effect.
3. Specify necessary and possible action(s) that need to be taken.
4. Define the expected outcomes resulting from its implementation.
5. Outline the rationale for its selection as the most appropriate alternative.
6. Be consistent with the goals and objectives of the program or organization.
7. Define the responsibilities of all individuals involved in the implementation of the decision.
8. Specify the conditions, limits, and constraints that may be involved in implementing the decision.
9. Anticipate possible side effects of the decision and indicate possible procedures for dealing with these effects.
10. Detail the criteria to be utilized in evaluating the effectiveness of the decision after it has been put into effect.
11. Indicate follow-up meetings to permit a reexamination of the decision after it has been implemented to determine whether it is yielding the desired results.

Failure to envision a decision as a communication referent can mean inefficiency and ineffectiveness in implementation.

Improving Organizational Decision Making in Educational Systems

It is obvious that many of our educational systems are in trouble. The majority of choices that have been and are being made are often inappropriate responses to the needs of the students and the larger society that the educational systems serve. If we are going to maintain publicly-supported educational systems that attempt to serve the widely-varied and complex educational and social needs of our society, then we must improve the quality and acceptability of educational decisions. Promoting change in educational decision-making structures and processes is one avenue to more effective educational decisions.

The variables influencing organizational decision processes, particularly public organizations, are numerous and difficult to isolate. They are woven in an interaction-influence process pattern difficult to unravel, and therefore difficult, but not impossible, to manage, change, and improve.*

Several pages ago, it was suggested that in order to be effective, a decision had to be an "appropriate" response to the change needs of the system, as well as acceptable to the members of the system who were affected by the decision and/or responsible for translating the decision into action. Altering the decision-making structures by which educational decisions are made and harnessing influential decision variables to work toward improved change decisions are two ways of improving the quality and

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*The preceding discussion of influential decision factors did little in the way of indicating the complexity of the interaction effects due to continuous process.

acceptability of the decisions shaping the future of our educational systems.

Improving Decision-Making Structures

Who should be involved in making education decisions? The answer to this question should vary.

1. Educational decision-making structures should permit variance and flexibility in composition. The variety of needs and problems confronting most educational decision-making units is constantly increasing in scope, while at the same time the typical local school board and superintendent decision-making structures of most school districts remain somewhat limited in response capability. That is, due to the fixed nature of many educational decision-making units (like local school boards) the knowledge and skill capability of the unit remains limited. The knowledge and skill capability of a decision-making unit can be increased by expanding the contributing membership of the group. A "floating" dimension that changes with the decision situation confronting the decision makers is one way of building in variance and flexibility. The structure of the decision-making unit is then able to change as the needs of the decision-making unit change, while maintaining a central core for continuity and integration in system decision making.

2. Educational decision-making structures should maximize "differentiation" and "unification." Decision-making units should make possible the presentation of a plurality of facts, values, norms, and action alternatives (differentiation) and a unified resolution which incorporates as much variance as possible. "A complex problem is likely to give rise in

discussion to a variety of contradictory factual reports, differing values and norms, and conflicting suggestions for action. An adequate decision will have to note and embody most of the contradictory material and also relate it to the previous commitments of the group; but this is possible only through an intricate process of combination, evaluation, modification, and elimination" (Diesing, 1962, p. 178). A decision-making structure is differentiated when knowledge, skill, and power are widely and evenly distributed, maximizing the participation potential of many different ideologies. Unification results from mutual understanding, identification, openness, empathy, and trust. Unification within decision-making structures is likely to stem from toleration rather than complete identity. "Toleration is an incomplete form of unification; it consists of accepting the divergent beliefs and roles of others as valid . . . without taking them up into one's own ideal self. It is based on partial unifications and conditional loyalties, that is, on a feeling of underlying identity combined with a recognition of continuing . . . differences among group members" (Diesing, 1962, p. 185).

There is a tendency within established ways of structuring educational decision-making units to promote either extreme differentiation and extreme unification, neither of which results in effective decisions. When decision-making groups are being formed (either by election or selection), efforts should be made to find individuals with differing, representative viewpoints who have demonstrated a willingness to work in cooperative ways to improve educational decisions.

3. Educational decision-making structures should be designed to encourage a free flow of relevant, timely, and accurate information and communication. "The diffuseness of the decision apparatus in education

(over which it is not proper to superimpose a simple kind of hierarchical structure for conceptual purposes) means the development of systems to provide required information for each class of decision making may be a complicated task, but it is a very important one. Contrary to some opinions, it is not useful to have all the information about everything in one place. Relevance is an important variable in determining how much information flows among points in a network. So ultimately, some kind of structure will have to be developed for designing the needed flows" (Adelson, 1968, p. 240). Educational decision makers frequently make decisions without adequate recourse to the related experiences of others, without adequate information on the state of the art, and without an extensive understanding of the implications of the alternatives (Adelson, 1968, p. 244). There is no need for such conditions to exist. Information systems permitting ingestion, digestion, dissemination, and interpretation are within our technological design capabilities.

Designed information and communication networks are absolute necessities if we are determined to make the most effective educational decisions possible. These information and communication networks must connect all aspects of the system--administrators, students, teachers, knowledge specialists, community members, etc.--in such a manner that appropriate information flows and communication occurs between all elements in the system.

Improving the Decision Process

1. Educational decisions should be made in terms of carefully derived and clearly specified policy objectives that are subjected to continuous

scrutiny for relevancy and validity. Most of our educational organizations operate without the aid of policy objectives stated in verifiable performance terms. As a result, a holistic perspective of the interaction-influence of decisions can never be achieved. If a frame of reference for future policy, managerial, and operational decision making is established in verifiable performance terms through the specification of clearly-stated policy objectives, then educational decisions can be made in terms of their relationships to overall educational goals and objectives as well as in terms of their relationships to each other. Clearly, educational decisions made to further specific desired end states will provide better direction for educational programs, be easier to evaluate in terms of effectiveness, ensure more careful allocation of resources, etc. It will also be easier to demonstrate to affected members of the system why certain decisions were made. For example, if a school board can show specifically how their decision to run a summer workshop program for teachers, emphasizing development of inquiry teaching methods and skills, is an attempt to improve the level of independent problem-solving skills and abilities of the district's children (a previously defined educational policy objective), they may have less difficulty gaining acceptance for the decision both in the community and among the teachers in the system.

Continuous efforts must be made to update policy objectives (statements of desired end states) in light of changing societal needs to ensure maximally responsive change decisions.

2. Educational decisions should result from systematic processes. More appropriate educational decisions will result from systematic needs assessments, problem analysis, and alternative development and evaluation. A systematic approach to decision making is likely to produce a better

integrated course of action.

3. Educate the decision makers. All too often we assume that election to an educational decision-making body is sufficient experience for educational decision making. Rarely, if ever, are time and money spent on improving the capability of a decision-making unit. Adelson (1968, p. 243) suggests "the immersion of 'teams' (groups of people who are intended to work together toward a common goal) in progressively more complex problem environments that approximate in some essential respects their normal or anticipated working environment, with 'feedback of results' so that they may collectively evaluate each other and their joint performance." Training for more effective collective decision making might include: group process and communication, systems analysis, creativity, simulation, and resource utilization. Educating those individuals involved in the decision process can improve the quality of decisions by expanding their frame of reference and improving their skills and capabilities.

4. The educational decision process should be continual and anticipatory rather than merely responsive. To some degree, educational decision makers are already behind the eight-ball, in that they are spending most of their time dealing with immediate crises, rather than making decisions that will anticipate and prevent future problems. In order for educational organizations to move forward at a pace consistent with the rate of change in the larger systems, the focus of decision making must change from the past and present to the future.

5. Effective educational decisions will be made only when adequate time is allotted. Too often educational decision making is considered a part-time, extra-hours job. Local school boards, teachers' committees,

and student bodies participate in the decision process within extremely limited time frames, usually after putting in a full day's work in another capacity. The human potential (alertness, etc.) is reduced by this approach. Further, the time constraints imposed by part-time educational decision making usually limit the amount of information gathered and used, the number of alternatives generated and explored, and the evaluation of alternatives. In a sense, limited time often short-circuits the entire decision process.

Conclusion

The quality and acceptability of educational decisions will improve only when time is taken to examine and redesign the structures and processes by which they are produced. Only then will educational decision making become politically rational.

CHAPTER III

RATIONALITY AND CREATIVITY IN DECISION MAKING

> Human life is never without its two dimensions. Culture (reason) and spontaneity . . . (Ortega y Gasset, 1961, p. 52).

> The rationality of social choice and group decision has been even more difficult to demonstrate than that of individuality. The stumbling block has been the determination of the appropriate value scale (Dyckman, 1961, p. 340).

> It seems clear that values . . . have their origins in the patterns of choice behavior that are characteristic of any given society. What we mean when we say that a society is committed to certain values is that the people in that society will typically make judgments and choose to act in ways that reveal and reinforce those values. It seems equally clear that choice behavior is determined, or at least circumscribed, by the options available to choose from at the time the choice is made. We can choose to go to the country or to go to the moon, but we cannot at this time choose to go on living for 150 years, because that option is not now available to us.
>
> Available choice options do change over time, of course. Thirty years ago we could not have chosen to go to the moon; 30 years from now we may succeed in extending the human life span to 150 years. When options are thus changed or expanded, it is to be expected that choice behavior will change, too, and changed choice behavior can in turn be expected, given appropriate time lags, to be conceptualized or "habitualized" into a changed set of values (Mesthene, 1970, p. 49).

Today

Today is the result of an infinite number of choices made under varying value systems. Since the industrial revolution a predominately technological and economic value system has determined the course of events. The stranglehold of technology and economics on decision making has created a scientific, technologically, and economically advanced system that has only recently recognized a state of internal tension arising from this strictly "utilitarian" approach to decision making. The less desirable byproducts of over-utilizing technological and economic rationality include: wars, over-population, pollution of the human environment, a rate of change with which man is not prepared to socially and psychologically cope, revolution from within, increasing gaps between those who have and those who do not, etc. The application of technological and economic rationales in decision making have combined to multiply both the opportunities and problems that our society faces, and accelerated the changes with which it must come to terms.

There is a growing need to "make our social decisions deliberately and in public ways, rather than allowing them to 'fall out,' so to speak, of the interplay of innumerable private decisions. . . . this means that allowing political change to come gradually and of its own accord may no longer be a viable strategy for contemporary society, as many of our youth are coming to insist. Instead, we face the problem of deliberately restructuring our political institutions and decision making mechanisms--including the system of economic decision making--to make them more adequate to the enhanced social role of the public sphere" (Mesthene, 1970, p. 69). We need what Gross (1966, p. 251) describes as broader rationality, "a

rationality for the guidance of social systems," but the development of such a complex rationality for the social good poses what for the time being appears to be an unresolvable conflict. How can the values and/or preferences of the individual members of a system be incorporated in a fair manner into a single value structure that can serve as a basis for making decisions for the public good. Arrow (1951) shows that five requirements of fairness cannot be functionally satisfied in any one decision-making system. The conditions of fairness are:

> first, universal domain--that is, resolves all possible preference patterns;
> second, positive association of individual values;
> third, independence of irrelevant alternatives;
> fourth, citizen sovereignty (nonimposition); and
> fifth, nondictatorship.

Arrow proceeds to show that if a function satisfied the first three conditions, it was either imposed or dictatorial, and that the route from individual values to social choice is at best studded with conflict. Vickrey (1960, p. 521) points out that ". . . in the case of political, social and moral events, the conflict is inherent in the nature of the wants themselves, rather than in any limitation of the available resources; the wants are inherently for social states as such, and not merely for the results that may be deemed to flow from a social state for a particular individual."

We are faced with the problem of improving our decision processes in order to reflect the multi-faceted value systems of many differing value structures. The processes by which we have made and are making educational decisions have resulted, more often than not, in stagnant patterns reflecting and serving the technological-economic values of the industrial revolution. Somehow the processes by which we make the decisions which in turn

mold and shape the futures of a nation's children must be improved to include a wider base of guiding rationalities and creativity.

Rationality implies order, rules, analysis, synthesis. Creativity implies invention, spontaneity, originality, motion, growth. Both dimensions are necessary aspects of effective decision processes. As we attempt to make our educational systems more relevant to the needs of the students, as we move toward educational systems that are functionally designed to respond to and anticipate current and future changes, we need to make sure both rationality and creativity enter into the decision process.

The imposition of rationality on planning, problem finding-solving, and decision making without the spark (or impetus) of creativity will only develop more rigid and more ordered systems. Rationality can militate against the spirit of creativity in that it tends to favor modes of reason which sustain the established forms of life and modes of behavior. "A given reality has its own logic and its own truth; the effort to comprehend them as such and to transcend them presupposes a different logic, a contradicting truth" (Marcuse, 1964, p. 142). Different orders and contradicting truths come into being through creativity. Thus, any guidance system used in educational decision making must incorporate both varying kinds of rationality and creativity to ensure a multi-dimensional response and anticipation of current and future needs.

Education systems must look forward. They are in the business of preparing individuals to function in a world that will most likely be very different from today. Decisions made today must reflect not only rationality, but vision and originality if they are to be effective for the future.

Rationality

Rationality implies the application of knowledge and reason (logic) in choice situations. Reason is order or negative entropy. It is a necessary aspect of a purposive and growing system. A system will live and grow to the extent that it can produce, increase, or preserve some good in a consistent, dependable manner. Consistent good results from the ability of the system to order its efforts according to some principle or set of principles.

The principles governing any system are derived from in accordance with the system's perception of its survival and growth needs in terms of the larger environment of which it is a part. Rationality is thus bounded, limited, and/or constrained by the conceptual and perceptual capabilities of the system.* For example, the logic of Western man differs from that of his Eastern counterpart. The order or logic imposed in choice situations will differ in accordance with the logic structures known to each, yet each can be considered a rational man, provided his decisions and behavior reflect the use of available knowledge and "acceptable" logic patterns.

In determining whether decisions reflect rational behavior on the part of a system we must not only be aware of the conceptual and perceptual

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*There is no truly objective rationality because man is not omniscient. All human systems (be they individual or organizational) operate with bounded rationalities. Recognition of our bounded reasoning processes means we realize that: (1) we can never have complete knowledge of consequences--that it will always be fragmentary at best; (2) since consequences lie in the future, imagination must supply the values lack of experience prevents us from having--values can be only imperfectly anticipated; and (3) we rarely, if ever, can envision all possible alternatives (Simon, 1947, p. 81).

limitations of the decision-making system, but also of the fact that any system may possess a whole hierarchy of rational mechanisms (see Figure 3), and that it may be our task to determine whether or not the system has used or is using the most appropriate reasoning for the situation.

In our society, rationality based on technological and economic principles has provided the framework for many public and private decisions. Within our changing social context the validity of rational decisions based primarily on utilitarian principles is being questioned. In a complex and technologically advanced system where basic questions of survival have been resolved, other rational mechanisms must come into play if the system is to keep producing a consistent good. These rational mechanisms must in turn be integrated into a more "global" rationality capable of guiding decision-making systems into a more complex future.

> A society or organization can continue in existence only by appropriating materials from its environment. In order to get these needed materials it must produce other materials for use in dealing with its environment, whether the dealing consists of exchange or of theft. [technical rationality]* It must evaluate its input-output balance to see whether the values produced are satisfactory in terms of individual desires and organizational survival. [economic rationality] If its members are human beings, they will develop expectations toward one another, and these must be coordinated in order to maintain the required level of group action. [social rationality] Failures of coordination will lead to disputes, and these must be settled according to some predictable, equitable pattern. [legal rationality] Finally, all of these necessities call for the making of group decisions, for communicating information and decisions, for checking and evaluating, and this too requires a structure which must be maintained. [political rationality] (Diesing, 1962, pp. 239-240)

Rationality is implied in each aspect of system existence. All aspects of rationality (technical, economic, social, legal, and political)

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*Words in brackets added for clarification.

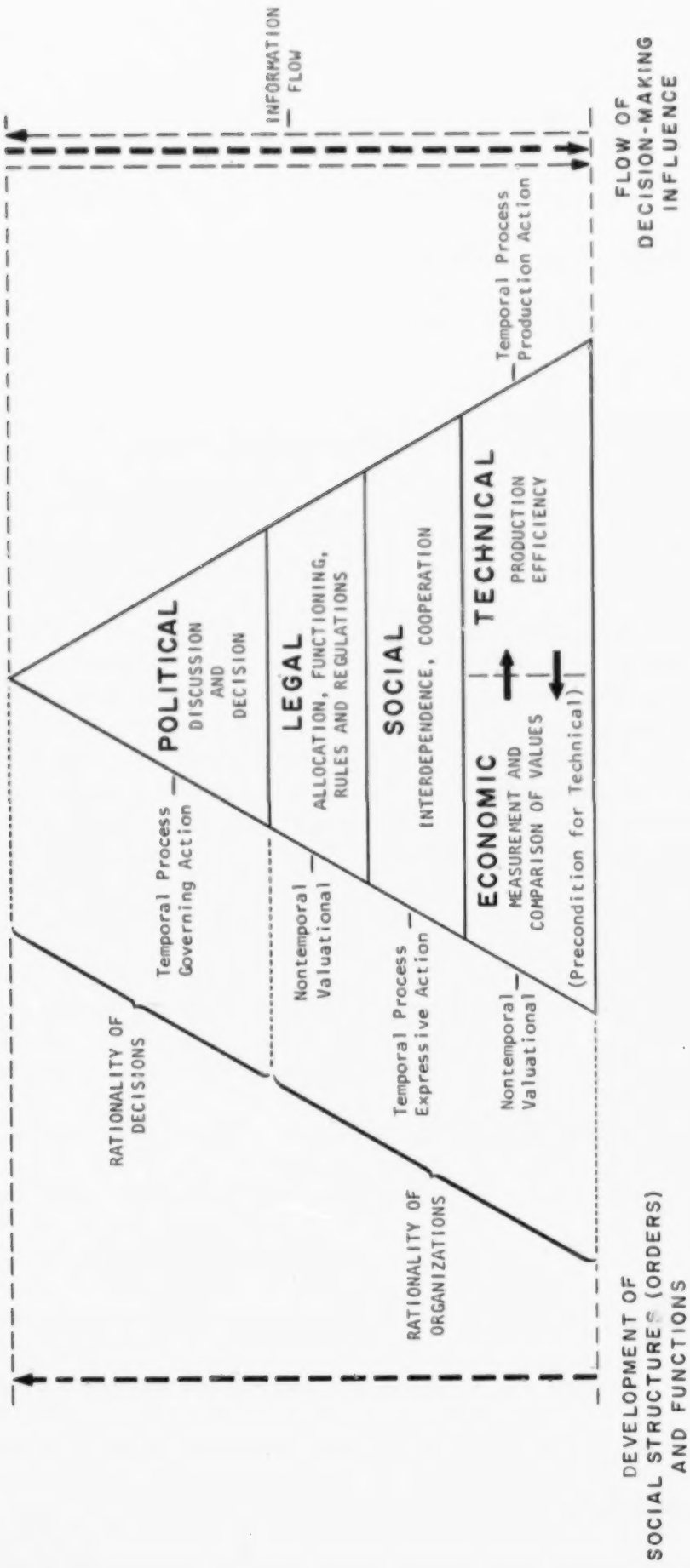

Figure 3: Relationship of Rationales developed by Diesing (1962).

must be included in decision making if the system is to continue and grow. Because the decision-making structures of an advanced system often determine what rationalities are emphasized in decision making, we will begin our discussion of specific rationalities with political rationality.

Political Rationality

Political rationality is the rationality of decision-making structures.

> . . . it deals with the preservation and improvement of decision structures, and decision structures are the source of all decisions. Unless a decision structure exists, no reasoning and no decisions are possible; and the more rational a decision making structure is, the more rational are the decisions it produces. There can be no conflict between political rationality and any other kind of rationality because the solution of political problems makes possible an attack on any other problem, while a serious political deficiency can prevent or undo all other problem solving (Diesing, 1962, pp. 231-232).

Political rationality implies a logical approach to choosing the process by which the system will make decisions and the parts to be played by component members of the system. Our educational decision-making structures rarely reflect a political rationality. The mechanisms that assure the presentation assessment and utilization of a plurality of facts, values, norms, and actions are for the most part missing. What is apparent is the acceptance of a decision-making structure that is no longer logically suited to dealing with the complexity of the educational system and its environment.

A functional political rationality produces adequate decisions for complex situations with some degree of regularity. The system is politically rational "if there is adequate provision for gathering and checking information, adequate provision for inventing and checking suggestions,

and adequate procedures for combining suggestions into a decision. 'Adequacy' here means effectiveness in dealing with problems facing the system" (Diesing, 1962, p. 238).

Political rationality provides for the presentation of a plurality of facts, values, norms, and action alternatives (differentiation). At the same time it makes possible a unified resolution which incorporates the differing materials presented (unification).* Political rationality increases as the system member's toleration increases.

> Toleration is an incomplete form of unification; it consists of accepting the divergent beliefs and roles of others as valid phases of the group culture without taking them up into one's own ideal self. It is based on partial unifications and conditional loyalties, that is, on a feeling of underlying identity combined with a recognition of continuing irreducible differences among group members (Diesing, 1962, p. 185).

According to Diesing, political rationality requires decision-making structures that can be adapted to: problem solving, persuasion, bargaining, and politicking.**

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*"A decision structure yields improved decisions as it embodies both of these characteristics to a greater degree. First, the greater the variety of presented facts, values, and norms, and the greater the variety of proposed alternatives a structure is able to produce, the more effective its decisions are likely to be. The reason is that decisions are made necessary by problems and complex problems require complexity of treatment for adequate solution. . . . Second, the more intricate and subtle the ways of unifying presented factors are, the more effective the decision is likely to be. . . . A complex problem is likely to give rise in discussion to a variety of contradictory factual reports, differing values and norms, and conflicting suggestions for action. An adequate decision will have to note and embody most of the contradictory material and also relate it to the previous commitments of the group; but this is possible only through an intricate process of combination, evaluation, modification, and elimination" (Diesing, 1962, pp. 177-178).

**"In problem solving the participants assume that they share a joint examination of the problematic situation, assembling information, making predictions, giving and weighing suggestions, and continuing until everyone is satisfied with the result. . . .

If participants find that they differ in beliefs, goals, or criteria,

> A structure adapted to all four processes must therefore provide multiple alternative forms of unification--common beliefs and values, trust, tolerance, rules of procedure, and also power distribution and centralization. Multiple leadership roles are also necessary to operate these different kinds of unification. Differentiation should vary with the issues raised; some issues should divide the structure into clear and continuing groups for bargaining, and others reduce it to multiple shifting points of view for problem solving (Diesing, 1962, p. 197).

Problem solving, persuasion, bargaining, and politicking are all necessary to some extent for the preservation of complex decision structures; complete reliance on only one or two processes leads to structural deterioration, and the dissolution of political rationality.

Political Decisions

Political decisions are those concerned with the preservation and improvement of decision structures. "All decisions occur within a decision structure of some sort, but political decisions have decision structures as their special subject matter" (Diesing, 1962, p. 198). Educators are rarely involved in making changes in the decision-making structures. Only recently, due to (among other things) increasingly vociferous student

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they may resort to persuasion in an attempt to eliminate the differences. Persuasion involves mainly the testing of disputed beliefs and values by reference to more general criteria shared by the participants. . . .

In bargaining, the participants work out their own objectives and strategies privately before meeting together. They assume that their objectives, or at least their immediate objectives, are not shared by the other participants, and that persuasion will be ineffective in producing agreement. Instead, agreement is reached by exchanging concessions or pretended concessions, with each side trying to gain a maximum and give up a minimum. Politics is a preparation for bargaining; participants assume that bargaining will eventually be necessary, and try to establish as strong a bargaining position as possible in advance. They do this by forming coalitions, marshaling or increasing their resources, and diverting or destroying the opponents' resources" (Diesing, 1962, p. 175).

bodies have we begun to examine our educational problem finding-solving and decision-making structures and undertaken to change them, to make decisions based on the political rationale that what is-isn't apparently doing the job. Gradually, we are beginning to see more students, teachers, and parents involved in the educational decision process. Hopefully, the increased plurality of opinion and ability will improve the quality of educational decisions.

Applying Political Rationality

Political rationality determines the kind of decisions an organization can make, and is thus fundamental to all decision making.

Basically, political decisions are made to: (1) maintain the independence of the decision structure in the face of pressure; (2) to structure a decision-making body that is balanced and moderate; and (3) to prepare for future pressures. In other words, political decisions are required primarily when deficiencies in the operating decision structures of a system become apparent. "The symptom of a political deficiency is the existence of numerous and increasing nonpolitical problems for the organization" (Diesing, 1962, p. 228). Decision structures are established to provide for the resolution of problems, if unsolved problems accumulate, deficiencies in the decision structures may be indicated.

> The deficiency may be some form of narrowness, in that the structure is not receptive to an adequate range of facts, or that it is not able to break away from well-known formulas in its estimates of problems and suggestions for action, or that it is insufficiently self-critical and slow to admit error, or that its procedures are excessively rigid and thus shut out novelty. The deficiency may be some form of indecisiveness or internal conflict, in that decisions are excessively difficult to achieve, or that they are nullified or changed by concealed internal opposition, or that the

> system "changes its mind" too readily after reaching a decision" (Diesing, 1962, p. 227).

Political rationality must be operative in the decision process at the policy level. Through the political decisions concerning who will be involved in decision making and the nature of the decision-making process itself, the patterns for the definition of goals are set. So, if we are to expand the framework of the decision process in education, we must first expand our decision-making structures through the application of political rationality. If we fail to recognize the inadequacy of our present systems, we are lost.

Legal Rationality

Every social system develops a set of basic rules for the guidance of member behavior. These rules form the legal order of the system. They define expectations and obligations. The legal order sets the limits of individual action, indicating what actions are necessary and/or possible. Legal reasoning involves the application of rules to situations requiring action.

> These rules must be complex, detailed and precise enough apply unambiguously to all cases; they must be consistent; some of the rules must apply impartially to all persons, while others must apply differentially to different statuses or classes of persons (Diesing, 1962, p. 151).

A legal rationale produces:

> (1) a trend toward complexity of distinctions and clarity of detail, such as highly technical terms, (2) a trend toward clear and distinct hierarchical differentiation, for example, job specification, (3) a trend toward uniformity, equality, and universalization where differentials are not involved, and (4) more generally, a trend toward rigidity, unchangeability, action according to rule. Once rules are made, they may be clarified, made more precise, extended but not changed (Diesing, 1962, p. 140).

Primary reliance on legal rationality is well evidenced in the typical bureaucracy. A bureaucratic organization develops a code of rules and set forms; the rules and forms become more complex and detailed; the applicants are treated uniformly according to unvarying rules; and the bureaucratic personnel, themselves, often develop an increasingly detailed hierarchical differentiation. Many educational systems operate using a legal rationality as the basis for many decisions. For example, personnel policies such as teachers' tenure have been so rigidly adhered to that we have many ineffectual teachers in our classrooms. The rules have been established and applied in an orderly fashion to ensure uniform treatment for all teachers, whether effective or not.

Once a system has become entrenched in a mode of operation that rests heavily on legal rationality, it is by its nature difficult to change. A legal rationality will be most effective when utilized in conjunction with other types of reasoning.

Judicial Decisions

A decision may be termed judicial when a choice among alternatives is made through an application of rules to cases. "Rules are statements that a certain class of persons has a duty to perform (or not perform) certain actions, or conversely, that a class of persons has a right to certain treatment" (Diesing, 1962, p. 155). Judicial decisions must be made by a neutral party.

Applying Legal Rationality

. . . Judicial decisions are appropriate in situations

> involving clear and relevant rules, an acceptable judge, clear and continuing differences of interest, and the two kinds of inducements to obedience, self-interest and identification. Unless the rules and the judge are available, judicial decisions are impossible; unless both inducements to obedience are present, decisions will be ineffective; unless the continuing differences are present, judicial decisions are unnecessary or harmful (Diesing, 1962, p. 162).

In many decision situations it is impossible to apply legal rationality because there is no neutral party available to make the decision. Participating members of decision-making bodies are usually representing various interests and points of view and cannot, therefore, make impartial judicial decisions. For example, "Legislatures are capable of making political decisions, which deal with problems of common interest, and also economic-bargaining decisions where there are conflicts of interest, but they cannot adjudicate disputes like a judge" (Diesing, 1962, p. 162).

In recent years legal rationality has been applied at the federal level in an attempt to influence the operations of many educational systems. The judicial rulings of the 50's and 60's have made it imperative for schools to consider the legal aspects of many educational issues.

A legal rationale comes into play

> when there are permanent, clear differences of interest, it acts to stabilize the resulting conflict-situation, <u>if and only if</u> there are already bases of stability--stable power relations, solidarity, common principles--but it does not resolve the conflicts, remove the frustrations and hostility, integrate the opposed interests (Diesing, 1962, p. 143).

This is the obvious result of the court's attempt to provide equal quality education for all youngsters. Very little true integration of interests and desired ends has been accomplished.

Social Rationality

Social rationality is the application of reason to the development and maintenance of integrated and balanced social relations within a system. "A system is integrated when the activity of each part fits into and completes the activity of other parts, and when in addition each part supports, confirms, and reinforces other parts by its activity" (Diesing, 1962, p. 76). A system is in balance or equilibrium "when opposing forces within it balance each other, and hold in check the action and changes which each one by itself would produce" (Diesing, 1962, p. 81).

A word of caution--like a teeter-totter in perfect balance, systems that remain in states of true integration and balance over long periods of time are not moving or alive. They are characterized by: (1) internally consistent roles, (2) mutually agreeable integration of roles, (3) continuity of successive roles, (4) compatibility with the nonsocial environment, and (5) a value system characterized by particularism, loyalty, and ascription.

Inconsistency, discontinuity, and conflict are necessary for growth; therefore, strict adherence to a social rationale is likely to produce a stagnant system.

Integrative Decisions

Integrative decisions are basically decisions involving the adjustment or mutual modification of forces. They include the "putting together of things that were separate and the reconciling of things that were in

opposition; also negatively, the separation of irreconcilable forces and the exclusion of disruptive elements" (Diesing, 1962, p. 97).

Integrative decisions can be either preventative or curative in nature. Preventative decisions involve the application of three basic principles: (1) select or arrange situations which are not too difficult to master; (2) make provisions for future stresses; and (3) hedge against uncertainty or postpone irreversible decisions (Diesing, 1962, pp. 101-105). Many learning situations require the use of preventative integrative decisions.

Curative integrative decisions are more complex, and the first step involves finding a starting point from which to work. Diesing suggests that one should: (1) find parts of the problem that can be changed with existing resources; (2) define the problem area as sufficiently independent; and (3) make sure the problem area is capable of expansion--that is, if the initial problem area is part of a larger problem, make sure initial decisions permit expansion to the resolution of the larger problem.

The general objective of an integrative decision process is to project the probable changes in personality and relations resulting from a given action and to then set up rational control over these changes.

Applying Social Rationality

Applying social rationality means that the decision-making body considers the problem situation as essentially social in nature. That is, that the problem is caused by a conflict of roles in the system. Desires and habits are treated as parts or symptoms of the conflict. The conflicts are then resolved by an integrative process in which the goals are changed,

rather than satisfied (economic), and the action alternatives are chosen according to how they contribute to changing the goals (Diesing, 1962, p. 114).

A social rationale is most suitably applied in situations which require the: (1) channeling of emotional energy and prevention of its diffusion or loss, (2) elimination of conflicts that would block action, (3) provision of supporting forces to strengthen action and carry it to completion, and (4) the action be made meaningful to participants. Clearly, many of the decision situations requiring action by educational administrators would benefit from a social rationale.

Economic Rationality

> The logic of economy is simply the logic of allocation and exchange. Goals demand achievement, but not all of them can be achieved because there is a scarcity of means. If some goals must be sacrificed, they should be the least important ones; or if partial achievement is possible, the most important parts of each goal should be achieved. This requires a detailed measurement of the comparative importance of each goal and each part of the goal (Diesing, 1962, p. 20).

Economy must be a consideration in any system where desired goals exceed the available means. The comparative importance of goals is established in accordance with a functioning value system.* "The output boundary of an economy is the locus of a society's ultimate values, those for the sake of which the economy exists. . . . Values such as standard of living, prestige, adventure and creative activity, ceremonial action, and knowledge are typical consumption values" (Diesing, 1962, p. 15).

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*Values are those conceptions of desirable states of affairs that are utilized in selective conduct as criteria for preference or choice or as justifications for proposed or actual behavior" (Williams, 1967, p. 21).

The value system of the society is reflected in its economy. The members of the society make judgments and choose to act in ways that reveal and reinforce those values. ". . . Some fifteen major value-belief clusterings that are salient in American culture [are] as follows: (1) activity and work; (2) achievement and success; (3) moral orientation; (4) humanitarianism; (5) efficiency and practicality; (6) science and secular rationality; (7) material comfort; (8) progress; (9) equality; (10) freedom; (11) democracy; (12) external conformity; (13) nationalism; (14) individual personality; (15) racism and related group superiority" (Williams, 1967, p. 24). These values are reflected in an economy designed to maximize private organizational and individual material wealth. Both public and private decisions made in this country have for a long time been based on an economic rationale whose value basis has been individual profit. That is, decisions have been made in terms of maximum material profit for the system making the decision with little regard for impact on other systems or the total environment.

The technological advances being made are forcing a reexamination of the value system underlying the economic rationality pervading our system.

Economic Decisions

Economic decisions involve assessing the values of given ends, ranking those ends and choosing those most valueable. If all goals were (or are) achievable, there would be no need for economic decisions. Questions of economy will most likely always be with us when making decisions about educational policies and programs. Therefore, the value system for ranking ends (or goals) is of paramount importance.

Applying Economic Rationality

Operating with an economic rationality means that alternative ends must be comparable on some scale. Measurement and comparability of goals are essential requirements in rational economic decision making.

Educational goals and/or ends are usually so abstractly defined that measurement and value comparability are impossible. Even when more clearly defined and measurable, it will be difficult to rank order goals in terms of their value. What is an appropriate value scale for ranking educational goals and making the necessary economic decisions required in education today? How can the divergent value systems emerging in this country be incorporated in a criterion scale that will provide the basis for fair economically rational decisions?

Technical Rationality

"Technical rationality appears in actions which are undertaken for the sake of achieving a given end" (Diesing, 1962, p. 9). It is the order imposed when choosing means that are adapted to ends--or when answering the question, How can we achieve our goals? It is a logic applied preferably after goals have been defined to determine which methods-means are likely to be most efficient* in achieving the desired end(s). It is the rationality of production, based on the rationality of consumption

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*A distinction between efficient and effective can be made. If a person has an end, he is obliged to use a means that is effective toward it, but he is not necessarily obliged to use the most effective or efficient means. To be effective he must only find means that are sufficient to achieve his ends at his level of satisfaction. To be efficient one must find means that produce the desired effect with the minimum of effort, expense, or waste.

(economic). Economic and technical logic exists in a symbiotic relationship. The order of production (technical order) cannot exist apart from the order of value measurement (economic order). A technically rational system is one which transforms resources into an optimally valuable product. In order to make technically rational decisions about this transformation, an economic or value system must exist.

Technical Decisions

A technically rational decision is one in which each step of a productive sequence is chosen because it is the best fitted to move the sequence along toward a given goal. As such, technical decisions cannot be made until economic questions of costs and values have been determined (Diesing, 1962, p. 12).

Applying Technical Rationality

The definition of goals is a prerequisite condition for the application of technical reasoning. Technical norms should not apply to decisions about ends or goals. For example, when an organization is making decisions concerning a change in goals and/or objectives, political, social, and legal considerations should form the focus for their reasoning and decisions, rather than means consideration. Once the desired ends have been defined, a technical rationality can be applied to the selection of effective means to achieve those ends. According to Diesing (1962)

> The technical norm points to its own conditions of applicability: it applies whenever one is deciding about the means to be used in achieving an end. Anyone who entertains an end seriously has thereby committed himself to achieve it (this is what it means to have an end) and ends cannot be

> achieved without effective means. Consequently, whenever a person has an end, he ought to be technically rational in achieving it (p. 12).

Technical reasoning is not involved in the comparison or ranking of goals or objectives. These decisions are essentially economic in nature. Neither can a technical rationale be applied in situations where clear-cut goals cannot be formulated. Technical rationality is appropriately applied when choices about means are being made. When means become ends in themselves, man becomes the servant of technology, rather than technology being the servant of man.

Integrating Different Rationalities in the Educational Decision Process

One day through the primeaval wood
A calf walked home as good calves should;
But made a trail all bent askew,
A crooked trail as all calves do.

Since then three hundred years have fled,
And I infer the calf is dead.
But still he left behind his trail,
And thereby hangs my moral tale.
The trail was taken up next day
By a lone dog that passed that way;
And then a wise ellwether sheep
Pursued the trail o'er hill and glade
Through those old woods a path was made.

And many men wound in and out
And dodged and turned and bent about
And uttered words of righteous wrath
Because 'twas such a crooked path;
But still they followed--do not laugh--
The first migrations of the calf,
And through this winding wood-way stalked
Because he wobbled when he walked.

This forest path became a lane
That bent and turned and turned again;
This crooked lane became a road,

Where many a poor horse with his load
Toiled on beneath the burning sun
And traveled some three miles in one.
And thus a century and a half
They trod the footsteps of that calf.

The years passed on in swiftness fleet,
The road became a village street;
And thus, before men were aware,
A city's crowded thoroughfare.
And soon the central street was this
Of a renowned metropolis;
And men two centuries and a half
Trod in the footsteps of that calf.

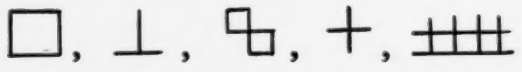
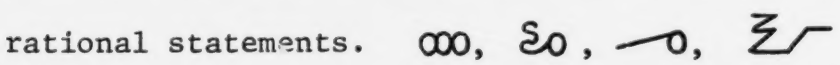
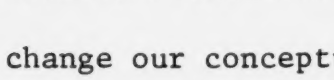
Each day a hundred thousand rout
Followed this zigzag calf about
And o'er his crooked journey went
The traffic of a continent.

A hundred thousand men were led
By one calf near three centuries dead.
They followed still his crooked way,
And lost one hundred years a day;
For thus such reverence is lent
To well-established precedent.

Sam Walter Foss, 1895

The old "utilitarian" avenues of rationality do not and cannot lead a 20th century society to "satisfactory" destinations. New and varied avenues leading to a variety of satisfactory ends must be discovered, designed, and integrated into the working structures and functions of the social system.

Rationality implies the imposition of some type of order (net) over natural processes. Order varies in pattern; thus, different systems of reason (logic or rationality) develop in accordance with the order frame imposed on reality. Rationality (reasonableness) is then determined by the degree of coincidence between the produced thought patterns of relationships and those of the order imposed. For example, let us assume that

this is the system of order we have established as our conceptual frame. Any statements showing relationships that coincide with this order will be perceived as rational. Thus,  are rational statements.  are not. If, however, we change our conceptual frame to  , then becomes irrational and becomes reasonable.

As we attempt to integrate our lives into an ongoing, ever-changing series of events of nature, we are likely to be more successful if the orders we impose on our human conceptual and perceptual process: are flexible--can change with the event level of process; are compatible with other systems of order--can co-exist within some undefined realm without destroying others; welcome new orders to the fold--make room for innovation and change.

We have discussed five types of order and/or rationality. Can they (and any others that appear relevant) function together to produce effective human system alternatives to meet individual and collective human needs or desires within the larger environmental context of events in process? Hopefully, expanded human awareness of options and order will produce a broader base of rationality, incorporating various types of rationality in the choice process.

Let us assume the educational context and restrict ourselves to the five types of rationality discussed earlier in this chapter and approach the problem of making a policy decision on district goals and objectives in a school district. Our goal is a decision or series of decisions that incorporates the rationality of the five orders.

Politically rational. To be politically rational the decision-making structure and process must make adequate provision for gathering and checking

information, adequate provision for inventing and checking suggestions, and adequate procedures for combining suggestions into a decision. Therefore, we need to ask the following questions before the decision process is set in motion.

1. Do the members of the decision-making unit represent a plurality of facts, values, and norms? If not, what can we do to expand the decision-making structure to include a wider range? Can the decision-making power be distributed in a more meaningful way to ensure maximum differentiation?

2. Can the members of the decision-making body work together to achieve unified, widely-accepted responses incorporating differences? If not, what kinds of training, procedures, outside help can be employed to resolve conflicts?

3. Is the decision-making structure representative of community, student, educator, and administrator viewpoints? If not, can steps be taken to incorporate with "real" power concerned and affected elements of the population?

4. Can the decision-making structure change with the needs of the decision situation? If not, how can we legislate more flexibility into decision-making structures?

Once the decision-making structure appears set and representative, the following questions should be raised.

1. What kinds of information are needed to make viable decisions (educational policy, in this instance)?

2. What are the best procedures for gathering and validating "relevant, timely, and accurate information"?

3. Where can we find "expertise"?

4. Do we need support help to gather and validate information?

5. How much time is necessary to gather and validate "adequate" information? What can we do to ensure appropriate time allowances for gathering and validating information?

6. What procedures do we need to establish for communicating, studying, and analyzing information?

7. What kinds of procedures should we adopt for generating alternatives?

8. Have criteria for evaluating alternatives been established in

advance of the generating phase?

9. Have procedures been established for negotiation and bargaining to help resolve differences? Are they acceptable to all members of the decision-making body?

10. What needs to be done to alter the current decision-making structures and procedures to ensure more effective and acceptable (to community, students, teachers, administrators, etc.) educational policies?

In other words, to be politically rational, educational policy systems will have to come from "adequate" political structure and process. This means examining what exists in the way of structure and process to determine its adequacy and relevancy in light of the current situation before initiating the policy decision process on educational goals and objectives.

Legally rational. A decision will be legally rational if it coincides with the system's rules. In the case of decisions on educational goals and objectives, alternatives need to be assessed against existing local, state, and national laws to determine compatibility. Should there be doubt, the issue would have to be tested in the judicial system. If there are permanent, clear-cut differences among members of the decision-making unit for which legal answers can be provided, then judicial action should be sought.

Socially rational. To be socially rational, policy decisions on districts' educational goals and objectives would have to:

1. Permit and be compatible with differing value systems within the school district.

2. Set the frame for educational programs that will provide for a variety of integrated avenues into the social system of the future.

3. Set the frame for educational programs that will provide learning activities that will enable children to assume varied and different roles (occupational and social) in the current and future society.

4. Set the frame for educational programs compatible with the non-social environment.

5. Set the frame for learning activities designed to relate and unite individuals.

6. Reflect a human, emotional response to choice of alternatives.

7. Promote an integrative approach to differences; that is, work towards the maintenance and integration of differences, make differences work together instead of in opposition.

Socially rational decisions reflect an attempt to integrate differences in a workable pattern that will maintain continuity while permitting and encouraging change. Instead of ranking different end states in a value hierarchy and making decisions in terms of those "most valued," attempts are made to integrate differences into working relationships that don't require valuation.

Economically rational. Decisions that are economically rational means that in a situation where resources needed for achieving desired end states are limited or scarce, some attempt has been made to assess the value of the desired end states and that allocation of resources has been made in accordance with the value of the end state. The value system used for comparison of end states is the crucial factor. Therefore, the following questions might be asked:

1. Does the value system being used to rank educational policy goals and objectives appear compatible with the present and future value systems of all system members? Have attempts been made to control bias?

2. Is the scale being used to assess ends based on social as well as individual needs?

3. Who should be involved in assessing the value of educational goals?

4. Can a criterion scale be found that will incorporate divergent value systems and maximize service to the differing systems?

5. Have the probable future-state value systems for the system been assessed and adjustments made?

The dilemma involved in making economically rational decisions, that of

finding a single value scale on which educational goals and objectives can be ordered, may prove unresolvable. Some decisions must be made however, because resources for education are limited. Whose value scale should we use?

Technically rational. Once educational policy decisions have been specified in stated goals and objectives, technical rationality can be applied to find the most "effective" and "efficient" manner of achieving those objectives. Questions such as the following can be used to assess technical rationality.

1. Have proposed alternatives been tested in other situations? What were the costs and achieved outcomes?

2. Will the alternative achieve the desired end?

3. Which of the alternatives is most likely to lead to the desired end with the minimum expenditure of resources?

4. Does each expenditure of energy or other material make a maximum contribution to achievement of the desired end state?

5. Can the desired end state be achieved with equal or more efficiency and effectiveness using varying alternatives?

If several rationalities are employed throughout the decision process, then we are more likely to be making more effective educational decisions. If we begin the process by making the decision structures and process politically rational, then we stand a greater chance of being socially and economically rational in our educational decision making.

Expansion of the reasoning powers we bring to bear in making decisions will not be easy. Our aims must reflect a desire and willingness to locate and describe new types of calculation, or quasi-calculation, appropriate to social, political, and legal problems.

> For instance, this might be done by broadening the conception of a goal and defining appropriate noneconomic "goals": maintaining optimal tension levels for social rationality, resolving and

> preventing conflicts for legal rationality, staying in power and preserving communication lines, and so on, for political rationality. The appropriate techniques for each "goal" could then be described in such a way that they are comparable both for costs and results. Finally, less exact methods of summation and comparison would have to be devised, since it is impossible to achieve the precision of statistical decision theory in social and political rationality. Most and perhaps all of this program remains an aspiration rather than an achievement, and it seems unlikely that such a program can ever be completed, because of the difficulty of adequately describing social and political rationality in terms of goals and techniques. However, even though complete success may be impossible, any partial achievement would be interesting as throwing new light on reasoning processes (Diesing, 1962, p. 247).

In essence we should be in the process of building a new loom to weave new social and educational patterns.

> . . . Upon this gifted age, in its dark hour
> Rains from the sky a meteoric shower
> Of facts . . . ; They lie unquestioned, uncombined,
> Wisdom enough to leech us of our ill
> Is daily spun, but there exists no loom
> To weave it into fabric.
>
> Edna St. Vincent Millay

Creativity in Decision Making

> Creativity: an arbitrary harmony, an expected astonishment, an habitual revelation, a familiar surprise, a generous selfishness, an unexpected certainty, a formidable stubbornness, a vital triviality, a disciplined freedom, an intoxicating steadiness, a repeated initiation, a difficult delight, a predictable gamble, an ephemeral solidity, a unifying difference, a demanding satisfier, a miraculous expectation, an accustomed amazement (Prince, 1969).
>
> To give a fair chance to potential creativity is a matter of life and death for any society. (Toynbee)

To live and maintain a vital relationship with their environment, systems must make creative decisions. Too often systems examine what exists, choose the least available evil, and act. Sidney Parnes (1967, p. 6) quotes

James Reston on the subject. "After a while, defense of what is seems more comfortable and easier than speculation on what might be. No thought is required. The familiar round questions are dropped into the slot, and out drop the automatic answers: smooth, tidy, stale and tasteless."

Novel responses to decision situations are necessary for growth and life. Creativity must be an integral part of the decision process if the alternatives man generates for future courses of action are going to create a dynamic equilibrium between systems and their environment. Creativity is necessary in any approach to the future.

Integrating Creativity and Rationality in Educational Decision Making

> The rational powers of the human mind have always been basic in establishing and preserving freedom. In furthering personal and social effectiveness they are becoming more important than ever. They are central to individual dignity, human progress, and national survival . . . And the society which best develops the rational potentials of its people, along with their intuitive and aesthetic capabilities, will have the best chance of flourishing in the future. To help every person develop those powers is therefore a profoundly important objective and one which increases in importance with the passage of time.
>
> Educational Policies Commission of the NEA, 1961

Alfred North Whitehead (1929) once said, "Fools act on imagination without knowledge; pedants act on knowledge without imagination. The task of a university is to weld together imagination and experience." We might paraphrase this thought and say, Fools act on imagination without knowledge and reason, pedants act on knowledge and reason without imagination. The task before educational decision makers is the weaving of creativity,

knowledge, and reason into the decision process.

> The effectiveness of creative productivity also depends, of course, on the evaluation and development of embryonic ideas into usable ideas. Without knowledge, imagination cannot be productive. Without imaginative manipulation, abundant knowledge cannot help us live in a world of change. And without the ability to synthesize, evaluate and develop our ideas, we achieve no effective creativity (Parnes, 1967, p. 7).

Educational decisions will to some extent shape the future by virtue of the learning experiences they provide for the citizens of the future. Decisions that do not reflect creativity in approaching the future and rationality in defining the future are likely to contribute to a stagnant, decaying, or chaotic social system.

Rationality and creativity should exist in a symbiotic relationship throughout the decision process, creating more effective decisions for change.

Novel approaches to problem finding or needs assessment, as well as generating alternatives, can be effectively combined with rational examination of problems, needs, and known alternatives to produce better alternatives. Through rational means of action we can also stimulate creativity by establishing and maintaining an open and supportive climate. Similarly, rational techniques such as operational gaming and systems analysis can be used to stimulate invention and identify creative potential. Rational methods can be used to assess the cost-value relationships of new alternatives. But we must be able to invent new and better alternatives through creativity before we can rationally assess them.

A desirable future will exist to the extent that we <u>rationally</u> approach the task of <u>creating</u> desired ends.

CHAPTER IV

GUIDELINES FOR MANAGING GROUP PROCESS

Some people resist change. Some hold the keys to it. Some admit the need for new ways but don't know how to begin. The question becomes what kind of management can ease the inevitable pains, unlock the talent, energy, and knowledge where they're needed, help valuable men to contribute to and shape change rather than be flattened by it (Albrook, 1967, p. 166).

One answer to Albrook's question is participative management, which means individuals will often be involved in collective problem finding-solving, planning, and decision making. The possible advantages accruing from participative management often require guidance, direction, and control (however subtle) in order to become real advantages. Given the multiplicity of variables interacting in group processes, nonproductive chaos can result as easily (if not more so) than productivity, therefore some management of group process is necessary. Some effort must be directed toward making the group functionally effective.

Effective groups are usually characterized by (1) goal or purpose clarity, (2) shared leadership, (3) cohesiveness, (4) intelligent use of differing abilities of group members, (5) balanced group productivity and individual satisfaction, (6) flexible procedures, (7) a high degree of communication, (8) feedback and review procedures, (9) freedom from

domination, (10) balanced emotional and rational behavior, and (11) effective use of time.

The guidelines and practical suggestions offered in this chapter revolve around four basic ideas: (1) group efforts are aided by systematic approaches to problems and/or tasks; (2) groups prosper best in an open and supportive climate; (3) control of group activities should be left primarily in the hands of group members, with a group manager or leader intervening only when necessary to improve the group's effectiveness; and (4) group efforts benefit from feedback and evaluation. It may be necessary, as groups begin the initial operation, for one individual to assume the role of group process manager. Hopefully, as the group works over time, this role can be assumed by all group members.

1. Plan for Systematic Problem Finding-Solving and Decision Making

Systematic group processes are more likely to lead to efficient achievement of group goals. If the participants know the route, how to negotiate it, and the time schedule, they can better adjust their behaviors in order to achieve the desired end state within the time allotted.* For this reason, we suggest a framework or a pattern for guiding the group process. It should be remembered, however, that the pattern of group procedures should remain flexible enough to accommodate

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*In effective group decision making, the group must base its decisions on the available evidence and proceed from decision to decision with an awareness of how much must be accomplished in a given period of time. Time is often a crucial factor in the decision process.

different group sizes, different tasks and problems, as well as different time schedules. The following steps suggest a possible pattern for group problem solving and decision making.

1.1 Locate the Problem

When a group convenes to solve a problem or make a decision, there is often a statement of the problem put before them. The tendency for most individuals and groups is to take this first conception of the problem and commence the analysis that leads to solution. This is not always the wisest tactic. In the beginning of a problem finding-solving or decision-making experience, the interest of the group should focus on exploring the problem. Considerable time should be spent on exploring, choosing, and isolating a starting point (Maier, 1963, p. 50). This often requires the repression of the natural tendency in individuals to gravitate toward solutions. The first question, then, is "what is the problem?" not "how can we solve this problem?"

Locating the problem and/or the decision environment is an important phase in problem finding. Is the problem or decision related to the environment, the organization, groups within the organization, individuals, or various combinations of the aforementioned?

If the problem is viewed as being in the environment or situation, different kinds of solutions are required than if it is viewed as a problem stemming from individual behavior. For example, the school library is not being utilized. This problem might be seen as related to the library environment. Solutions that might be considered relevant from such an approach could include: improving the lighting, making

books easier to locate, speeding up check-out procedures, providing more librarian assistance for the students, making the library environment more pleasant for the students, etc. The problem could also be seen as related to individual student motivation. Locating the problem with the students might provoke solutions such as: educating the students on library utilization, giving assignments that are conducive to library work, rewarding students who do make use of the library, interviewing students to find out why they don't use the library, setting good examples for the students through teachers by encouraging teacher use of the library, etc.

The location of the problem in the environment, the organization, the groups or individuals is possible whenever the problem or decision involves the behavior of people. There are other problem and decision locations for problems that do not involve human beings. Locating the problem within a defined frame of reference helps focus group efforts.

Care must also be taken to see that the problem is located within the group's sphere of influence. If the group has no power to implement a solution or decision once it has been reached, the problem remains essentially unsolved (Maier, 1963, p. 70). The sphere of influence should be realistically defined for the group, so as not to have the group efforts result in frustration. Of course, in spite of all attempts to confine solutions and decisions to a specific sphere of influence, there will be times when solutions or decisions require action from those outside the immediate sphere of influence. In such instances as these, the group should explore the ways in which they can encourage the necessary action from the "outsiders." Group members should always remember, however, that problem finding-solving and decision making

within their sphere of influence are the most constructive.

A problem area must be independent enough to sustain a solution and solvable with the available resources (Deising, 1962, p. 191). The problem area must be independent enough from its context to sustain a separate solution against outside pressures. "Outside pressures are not pressures from outsiders, strangers, foreigners, but pressures from other parts of one's* personality, other values, other role-expectations, etc., not included in the social area" (Deising, 1962, p. 191).

A basic framework for problem diagnosis and analysis should result from an initial exploration of the problem area.

1.2 Specify the Problem to be Solved and/or the Decision to be Made

After exploring and locating the problem area, the specific problem should be stated for the group to assure that everyone is, in fact, discussing and exploring within the same frame of reference. The following principles may help produce a problem statement that is a good communication referent for group action.

1.2.1 The statement of the problem should be clear and concise. (Long statements do not make good communication referents.)

1.2.2 Only one objective should be specified in each problem statement.

1.2.3 The problem statement should not reflect bias, imply a solution or suggest alternatives. It should encourage freedom of

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*One, as used here, can be expanded to the organizational context.

thought rather than restrict it.

1.2.4 Whenever possible, the problem should be stated in impersonal terms; that is, the statement of the problem should not imply individual behavior modification, but rather focus on the situation.*

1.2.5 The statement of the problem should reflect both organizational and individual goals.

1.2.6 The statement of the problem should be readily understood by both members of the group and interested outsiders. The language employed in its framing should be precise and mutually agreeable to all members of the work group.

1.2.7 The wording of the question should allow the widest possible latitude for investigation.

The statement of the problem confronting the group can have a major effect on the manner in which the problem is explored and resolved. For this reason, great care should be taken in framing the question.

1.3 Gather Data About the Problem--Retrieve Information

At this stage in the group problem-solving process it becomes essential for all members of the group to have a common body of factual knowledge from which the analysis of the problem can proceed. The general awareness information from which the problem was framed is no longer sufficient. Specific information about the problem is necessary

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*"Altering situations is easier than changing people. However, people will welcome changes in their behavior if it is their own idea. It follows, therefore, that a discussion to change the situation may lead to suggestion for behavior modification" (Maier, 1963, p. 79).

if the group is to determine what is happening, to whom, where, and why. This phase of the process might be thought of as creating a data bank of information about the problem.

1.3.1 Sources of Information

One of the first problems confronting a problem-solving group is where can relevant, timely, and accurate information be found. Specific sources of information will vary with the nature of the problem, but generally resources can be found in:

1.3.1.1 Group Members. Especially if chosen for diverse knowledges, group members are the first sources of information that should be explored. The resources of the group may provide a wealth of information with which to start and leads to information search activities.

1.3.1.2 Problem-Area Experts. Various methods can be used to "pick the brains" of subject-matter specialists who are working in the problem area. Conferences, short workshops, lectures, etc., have been used in the past as means of bringing expert opinion to bear. Other techniques, such as the Delphi Technique developed by Olaf Helmer, can be used to gather varying expert opinions. Basically, the technique involves: identifying the leading experts and securing commitment from them to participate in a panel; framing the question(s) to which you would like them to respond; securing their answers; circulating the answers (unidentified) among all participating experts for reaction and modification. (This is a simplistic representation of a somewhat complex process.*)

1.3.1.3 Current Journals, Government Reports and Documents, Research Project Reports, etc. Often the most current information is first published in the various specialty journals and research project reports.

1.3.1.4 Current Books. Books are more likely to present in-depth data and analyses than the shorter journal articles and report documents. The bibliographies in books can provide further leads.

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*For a more thorough explanation of this process, see: Olaf Helmer, 1967, Systematic Use of Expert Opinion, Santa Monica, California, The Rand Corporation; Olaf Helmer, 1967, "The Delphi Technique and Educational Innovation," in Werner Z. Hirsch, ed., Inventing Education for the Future, San Francisco, Chandler Publishing Company.

1.3.1.5 Current Periodicals and Newspapers. Magazines and newspapers are often good sources of contextual information; that is, they can help paint a picture of the social environment in which the problem and/or change takes place.

1.3.1.6 Professional Meetings, Conferences, Workshops, etc. An investigation of the subjects being covered at various professional meetings being held at the time of your information-gathering process may yield fruitful results.

1.3.1.7 Information Data Banks. Throughout the country there are repositories of selected information. ERIC is an example of an information data bank in the field of education. Data banks collect and store information according to subject area interests, and are supposedly designed to permit easy retrieval of that information.

1.3.1.8 Internal Reports of the Organization. When the problem is directly related to a specific organization, the various records and reports kept by the organization may prove useful. Production records, expenditure records, resource allocation records, and forecasts are examples of organizational sources of information.

1.3.1.9 Large Research Organizations, Public Utility Organizations, Banks, etc. When data about current and future trends in environmental and population changes are needed, one can often elicit the aid of organizations that keep and project that data as part of their ongoing process.

1.3.1.10 People Surveys. It may be necessary for the group to survey the attitude and opinions of a specified target population to gain access to appropriate information. Before undertaking such costly operations, be sure the information is not available elsewhere. Search out ways to combine your group's information needs with others to partially allay costs. C. Backstrom and G. Hursh, 1963, Survey Research, Chicago, Northwestern University Press is a good guidebook to survey methods.

Sources of information, of course, depend on the nature of the problem. The group should attempt to define the pertinent sources of information before initiating the information-gathering process.

1.3.2 Separate Fact and Inference

It might be wise to label all the information collected as fact or inference. "The most basic error in reasoning that one can commit is not to recognize that one is engaged in an inference-making process,

but rather to regard opinions, judgments, and predictions as though they were statements of fact" (Barnlund and Haiman, 1960, p. 147).

1.3.2.1 Facts are statements based on raw observations. Webster defines a fact as "a thing that has actually happened or is true; thing that has been or is; a state of things as they are; reality, actuality, truth." Statements of fact are based on some human being's perception of reality and, therefore, in some ways subject to the bias of that individual's past experiences, assumptions, desires, and needs. "Factual statements, like facts themselves are, of course, incomplete, since they derive from sensations which are themselves limited by the sensitivity of the observer and the conditions under which the observation was made" (Barnlund and Haiman, 1960, p. 110).*

Facts change. Since the real world is dynamic and undergoing constant change, perceptions of the world (or facts) will also change. "Statements of fact are, themselves, static because once they are verbalized they are available for all time; but reality itself and perceptions of it are constantly undergoing change and thus there is no end of new facts to be discovered" (Barnlund and Haiman, 1960, p. 110).

Factual statements should be tested and evaluated. Some criteria include:

1. Are the facts clearly stated? Material can be phrased deceptively. Often the terms used to define the data are ambiguous and misleading. For example, does the statement--35% of the schools in the nation favor using PPBS--give you a clear indication of the state of reality concerning PPBS? No, for we don't know what the term schools encompasses. Does it mean the public schools, does it include colleges and universities, does it include parochial schools? Neither do we know what favor means. When terms are not clearly defined, the inferences that can be drawn from facts will vary widely and in many cases be specious.

2. Is the fact stated in context? Partial statements of information can also be misleading. Facts that give the user no information about the environment in which they are located can encourage a false construction of reality. For example, a report published in a nationally circulated magazine about the state of education in secondary schools painted a dismal picture by using facts in isolation. "We, as a nation, were far less well educated in 1950

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*Some other operational definitions of facts that may prove useful include: "(1) A fact is an occurrence reported by a competent viewer or an existing situation which can be perceived by others; (2) A fact is a set of numerical data that conforms to the rules of statistical method; (3) A fact is a statement about events made by qualified authority" (Phillips, 1966, p. 77).

than in 1900. More than half the schools in the United States offered instruction in neither chemistry nor physics. Where 86 per cent of secondary school students once studied mathematics, only 55 percent do so today.' According to the AAUP Bulletin critic, Harold C. Hand, these data are grossly misleading. A radically different picture of American education emerges when the facts are put into context. In 1900 only 8 per cent of those of high school age actually attended high school; in 1950 the figure was 64 per cent. It is true that less than half of the high schools offer physics and chemistry but over 1800 of our high schools enroll fewer than 50 pupils each and thus altogether educate less than 2 per cent of the total secondary school population. The figures on training in mathematics and science also need further explanation. The figure of 55 per cent was probably obtained from U. S. Office of Education figures on enrollments for the year 1948-1949; algebra, 27 per cent; general mathematics, 13 per cent; geometry, 13 per cent; trigonometry, 2 per cent. By adding them one comes out with a total figure of 55 per cent. But this is a report for just one year and students normally attend high school for four years. With this factor taken into account it turns out that '98 per cent . . . studied mathematics in their first year of high school, 47 per cent . . . had done so in their sophomore year, 30 per cent of those who were in high school as long as three years had taken mathematics . . . and at least 16 per cent had enrolled in either trigonometry or solid geometry . . . during their senior year'"(Barnlund and Haiman, 1960, p. 116-117).

If the fact is not stated in context, it will often be possible for the group members to gather sufficient additional information to put the information in perspective--time permitting. Without the context it is difficult to get a balanced view of reality.

3. Are the facts current or at least dated? With conditions changing as rapidly as they are, it is imperative to date all information. Facts that represented an accurate picture of 1960 reality may be totally inaccurate in 1969.

4. Are the facts collected consistent with one another? When the factual information collected is widely divergent, it must be viewed with some suspicion until the discrepancy can be explained. Discrepant information should be subjected to further scrutiny. The divergence may be due to different data-gathering techniques, difference in observer reports, or a purposeful misrepresentation of reality.

5. Are the facts related to the problem? Individuals and groups have been known to use information that is not relevant nor related to the problem, just because they have it and truly pertinent information would be more difficult to obtain. When information does not bear directly on the problem, eliminate it from consideration.

6. If all the facts are presented in statistical language, do all members of the group understand them? It is often convenient to present factual material in statistical form. However, an unenlightened reader of statistical information may find the terminology confusing rather than informing. Statistics can be descriptive, inferential, or correlational and it should be clear to the user what kind of statistical information is being used. At least one member of a work group using statistical information should be thoroughly acquainted with statistical usage and interpretation.

7. Do the facts come from a reliable source? Unfortunately, the source from which facts issue sometimes affects the integrity of the information.

8. Does the information source present a clear picture of how the facts were obtained? "A claim to knowledge, when there is any possibility of doubt about its validity, ought to be supported by a description of the claimant's method for collecting the information he reports" (Barnlund and Haiman, 1960, p. 120).

1.3.2.2 Inferential statements are statements of conclusions, judgments, opinion, evaluation, predictions, and interpretation. The human bias is more readily reflected in inferential statements. Inference is the step beyond a statement of fact. The criteria for estimating the reliability of inferential statements extend beyond those used for testing factual information. Criteria of relevancy, currency, reliability, clarity of statement, all apply to inferential statements, but they do not constitute adequate assessment measures. "While factual statements can often be checked through further observation, inferences are more difficult to assess. Since inferences are less dependent upon perception, and more upon the intelligence, education, and experience of the person drawing the inference, there is a far greater opportunity for different opinions and it is far more difficult to resolve divergent views when they do appear" (Barnlund and Haiman, 1960, p. 111).*

When opinion information is being used, the following questions might be asked about the source of the opinion, conclusion, or judgment:

1. What are the source's qualifications in the problem area? An individual's intelligence, educational background, and practical experience with problem-related matters are relevant to evaluating his inferential statements. Further, it should be remembered that a recognized authority in one field is not necessarily the source of credible information in another. There is a natural tendency for the "halo" effect to operate, for people to give undue weight to the opinions of widely-reputed individuals. We cannot assume that a successful

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*We do not mean to imply that either factual or inferential information is preferable as a basis for decisions. Both are important and necessary.

admiral is automatically qualified to be an educational critic.

2. Is the source relatively free from bias? No one can be completely free of prejudice. There are individuals who are more able to see things from a broader perspective. They attempt to approach situations with as open a mind as possible. A clue to the objectivity of the reporter can be found in the material itself. "If the opinions tend to be stated in an unqualified manner, full of emotionally-loaded language, and phrased in ways which reveal wishful thinking, one might well be suspicious of the objectivity of the author" (Barnlund and Haiman, 1960, p. 134). If on the other hand the author presents his views in a well-evidenced manner and admits possible sources of error, etc., he is more likely to be credible.

   Another indicator of a source's bias is his social, occupational, and political affiliations.

   His past record of independence can also provide assistance in determining his freedom from bias. What is most desirable is a fine balance between independence and consistency.

3. Do the cited opinions of the source appear to be internally consistent with his general point of view? Sometimes authorities are quoted out of context. When it would appear that there is an inconsistency between an opinion used and the general viewpoint of the source, it would be wise to check back for the context from which the opinion was taken.

4. Is the opinion well supported by factual evidence? Do the statements expressed by the source have some basis in fact? Are the facts clearly expressed? Can the opinion have logically been derived from the information used by the source?

5. Do we have inferential information representative of different perspectives? Care should be taken to collect differing opinions on any controversial issue. Bias can be inherent in the information-collecting and sorting process, as well as in actual statement of opinion.

When a group is using inferential evidence to support a particular line of reasoning, two other factors become relevant--probability and the nature of the relationships implied by the inference.

1. What is the probable validity of the inference drawn by the source? While we can never verify the truth of an inference or generalization, we can determine the probability of its being so. Some generalizations have a higher degree of probability than others. Through statistics and carefully drawn samples, relatively reliable estimates of probability can be drawn.

   It should not be taken for granted that a statement

containing statistics is no longer an opinion. Any prediction about future events must of necessity be an inference, regardless of statistical expression.

Cost-benefit, effectiveness, and utility analyses for education are for the most part inference statements and should be regarded as such.

Most decisions cannot be made without using inferential materials (if they could, there would probably be no question about the preferability of one alternative or another); therefore, it is wise to keep in mind that inferential statements are fallible and that there is an element of probability involved.

2. Is the relationship established by the inference valid? Basically, we search for cause and effect relationships. Extreme caution must be exerted in making causal inferences. Generalizations and predictions often hold true in a high percentage of cases, but they can never be regarded as truth. Another caution stems from the fact that there is usually no single, simple cause for any event, particularly where human behavior is involved. In most instances there is multiple causality.

We also need to be aware of the differences between causal and correlational relationships. Much statistical data demonstrate a correlational relationship between two variables rather than cause and effect.

Ample time should be allowed for gathering relevant information. However, it should be remembered that with the increasing amount of knowledge and information available, it is almost impossible to gather all relevant information. Time and amount of information limitations should be set in advance, and when that point is reached, the group should move on to examining and analyzing the information.

1.4 Organize the Available Information in a Manner Conducive to Usage and Circulate to All Group Members

With the wealth of information available and necessary for analyzing the complex problems confronting modern organizations, it becomes necessary to organize information in a manner conducive to utilization.

Procedures for organizing information should be established before collection, so that incoming information can be organized as part of the collection process; otherwise, the group may find themselves bogged down before they even start. The organization of the information systems will vary with the problem or decision confronting the group. Possible organizational patterns include: isolation of important problem factors and related information; categorization according to type of information (survey, experimental studies, cost-benefit studies, etc.); classification according to technical, economic, legal, social, and political aspects of the problem; and indexed according to "author" and subject matter.

All group members should have the opportunity to review all the information gathered if they so wish. The best procedure for ensuring information exposure will depend on the time and financial resources of the group. For example, a centrally located library collection for this particular problem may be developed in which several copies of the collected information are placed for circulation. Time and money permitting, personal copies of all materials could be made for each group member.

1.5 Analyze the Problem in Light of the Information Collected

Once adequate information has been collected and assessed, the problem should be reanalyzed. The time is not yet right for developing solutions.

> Participants as well as discussion leaders focus on the objective of arriving at a solution and fail to give due consideration to an exploration of the problem. There is, therefore, a strong tendency to spend a great deal

> of time debating the merits of the first or the most obvious ideas. Procedures that delay the evaluation and selection of solutions and instead require that more time be spent discussing the problem tend to improve the quality of decisions (Maier, 1963, p. 123).

Using the information before them, each member of the group should express his view of the problem. After an initial airing of viewpoints, the group can turn its attention to exploring the important factors in the problem and the related information. From this discussion a written list of crucial factors can be developed that will provide the basis for solution, discovery, and exploration.

1.6 Specify Decision Criteria

The reanalysis of the problem should suggest some criteria that the solution or decision must satisfy in order to meet the change requirements. At this time, it might be wise for the group to outline and record the specifications and criteria the decision must meet in order to satisfy the established needs.

1.7 Generate Alternatives

After careful reexamination of the problem, the group is ready to create. An important principle to keep in mind at this point is the separation of the idea proposing and idea evaluation. The goal of the group in this phase of problem solving is to generate as many alternatives as possible, not to make judgments on their value. Research has shown that the wider the group's range of selection, the

wiser the final choice is likely to be. Novel solutions can be an open invitation to criticism. Group members must restrain themselves during the generating aspect of the process in order to provide an atmosphere conducive to creative thinking.

Group members need to be encouraged to think creatively and originally about solutions. We are still somewhat in the dark about the stimulation of creativity, but we do know that full knowledge of the problem combined with a willingness to discard old patterns of thought and action is more likely to produce creative problem solutions.* The following list of creative problem-solving techniques was compiled by M. O. Edwards (1966, p. 9-10).

1.7.1 "Brainstorming: An intentionally uninhibited, either individual or group approach. (Criticism is ruled out, free-wheeling is welcomed, quantity of alternatives is objective, combination and improvement sought.) The objective is to produce the greatest possible number of alternative ideas for later evaluation and development.

1.7.2 "Reverse Brainstorming: Sometimes useful prior to a brainstorm session. It consists of being critical instead of suspending judgment. (a) List all the things wrong with the operation, process, system, or produce. (b) Systematically take each flaw uncovered and suggest ways of overcoming it.

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*The Synectics Group in Cambridge, Massachusetts, has developed and researched several techniques for stimulating creativity. Further information can be obtained in William J. J. Gordon, 1961, Synectics, New York, Harper and Row; and George M. Prince, 1964, The Practice of Creativity, Cambridge, Synectics, Inc., 1969; Sidney Parnes (1967) also has some good suggestions in, Creative Behavior Guidebook, New York, Charles Scribner's Sons.

1.7.3 "Catalog Technique: Simply the reference to various and sundry catalogs or other source of printed information as a means of getting ideas that will, in turn, suggest other ideas. May be used in combination with the Forced Relationship Technique.

1.7.4 "Check-List Technique: A system of getting idea-clues or 'leads' by checking the items on a prepared list against the problem or subject under consideration. The objective is to obtain a number of general ideas for further follow-up and development into specific form.

1.7.5 "Free Association: A method of stimulating the imagination to some constructive purpose. (a) Jot down a symbol--word, sketch, number, picture--which is related in some key way to some important aspect of the problem or subject under consideration. (b) Jot down another symbol suggested by the first one. (c) Continue as in Step 2--ad-lib--until ideas emerge. The objective is to produce intangible ideas, advertising slogans, designs, names, etc.

1.7.6 "Attribute Listing: A technique used principally for improving tangible things. (a) Choose some object to improve. (b) List features, or attributes of the object and its parts. (d) Systematically change or modify the attributes. The objective is to satisfy better the original purpose of the object, or to fulfill a new need with it.

1.7.7 "Forced Relationship: A method which has essentially the same basic purpose as free association, but which attempts to force association. (a) Isolate the elements of the problem at hand. (b) Find the relationships between/among these elements (similarities--differences--analogies--cause--and effect).

(c) Record the relationships in organized fashion. (d) Analyze the record of relationship to find the patterns (or basic ideas) present. Develop new ideas from these patterns.

1.7.8 "Morphological Analysis: A comprehensive way to list and examine all of the possible combinations that might be useful in solving some given problem. (a) State your problem as broadly and generally as possible. (b) Define the independent variables present in the problem--as broadly and completely as possible. (c) Enter the variables as the axes of a morphological chart--or make a permutational listing. (d) Select the most promising alternatives and follow them through. The objective is to find ALL of the possible combinations--for subsequent testing, verification, modification, evaluation, and development.

1.7.9 "Input-Output Technique: A method for solving dynamic-system design problems. (a) Investigate direction (input, resources, etc.). (b) Establish measures for testing. (c) Develop methods. (d) Optimize a structure. (e) Accomplish a structure. (f) Convince others of its value. The objective is to produce a number of possible solutions which can then be tested, evaluated, and developed.

1.7.10 "Synectics: A structured approach to creative thinking. Operational mechanisms. (a) Making-the-strange-familiar (through analysis, generalization, and model-seeking). (b) Making-the-familiar-strange (through personal analogy, direct analogy, and symbolic analogy). The objective usually is to produce ONE best idea and carry it through to testing, verification, development, and production in final form.

1.7.11 "Inspired (Big Dream) Approach: A 'breakthrough'

approach which sometimes leads to spectacular advancements. (a) Think the biggest dream possible--about something to benefit mankind. (b) Read, study, and think about every subject connected with your big dream--and do so regularly, persistently, continually. (c) Drop down a dream or so, then engineer your dream into reality. The objective is to make the greatest possible achievement for human benefit.

1.7.12 "Edisonian Method: An approach consisting principally of performing a virtually endless number of trial-and-error experiments. A 'last ditch' approach, to be resorted to only: (a) When other, more systematic methods have completely failed to produce the desired results; and/or (b) when one is knowingly and necessarily delving into unknown areas of basic research.

1.7.13 "Kepner-Trigoe Method: A method particularly calculated to isolating and finding the problem and then deciding what to do about it. A systematic outline is made to describe precisely both the problem and what lies outside the problem but is closely related to it in order to find possible causes of the problem and facilitate decision-making.

1.7.14 "Bionics: Ask yourself, 'How is this done in nature?' Nature's scheme of things is revealed to those who search. (Note: this technique may come into play in synectics when utilizing analogies.)

1.7.15 "Value Analysis or Engineering: A specialized application of creative problem-solving to increase value. It may be defined as an objective, systematic and formalized method of performing a job to achieve only necessary functions at minimum cost. Six

questions are evoked concerning each part: (a) What is it? (b) What must it do? (c) What does it do? (d) What did it cost? (e) What else will do the job? (f) What will that cost?"

Whatever the method utilized to generate alternative solutions from which to make the final choice, it should be remembered that this is not the place for evaluation. All solutions proposed by the group should be carefully recorded for later evaluation.

1.8 Refine and Combine Ideas Into Viable Alternatives

The ideas put forth in the generating phase most likely will need to be developed, refined, clarified, and/or combined into viable alternatives.

1.9 Evaluate the Proposed Alternatives

Examining the probable consequences resulting from the adoption of each of the proposed alternatives is the next process.

1.9.1 Initial Screening

An initial screening may eliminate the solutions that are unfeasible. You may or may not wish to employ screening principles at this point. If you feel it would be advantageous to consider only selected solutions (time may be a crucial factor), the following screening principles might be used (Maier, 1963, p. 222-234).

1.9.1.1 Alternatives founded either upon (1) unchallenged facts or (2) unchallenged interpretations of facts taken from the problem

situation should be selected for consideration and evaluation.

1.9.1.2 Alternatives that are founded on support from several sets of data should be considered and evaluated, before those resting on one support.

1.9.1.3 Alternatives with more differing types of supporting facts and interpretation are likely to be more valuable.

1.9.1.4 Alternatives based on personal preference, transferred from dissimilar situations and lacking foundation in facts should be eliminated.

Initial screening can save time by diverting time from debates over questionable facts and avoiding nonconstructive interpersonal clashes.

1.9.2 Final Evaluation

During the final evaluation process the group should be considering only those solutions that have a good basis in fact and hold some potential for viable problem resolution or needs satisfaction. Basically, the questions before the group at this state are: "How effective and efficient is each alternative in meeting established needs?", "What are the consequences of adopting each alternative?", and "How workable is each of the alternatives proposed?".

Several points of view can be utilized in appraising the remaining solution proposals: (1) cost, value, and practical considerations; (2) integration requirements; (3) the facts and inferences supporting the solution; (4) possible combinations of solutions; (5) predefined criteria that decision or solution must satisfy; and (6) acceptability to group members.

1.9.2.1 Costs, Values, and Practical Considerations. Alternatives that: (1) fail to meet the future, goal, and output orientations and expectations of the clients to be served; (2) are not satisfactory in

terms of validity, relevancy, feasibility, acceptability, and reliability criteria; (3) feature an unfavorable balance between the cost and value aspects of their probable consequences; (4) require the expenditure of more resources than are available to the organization; and (5) require action beyond the sphere of influence of the decision-making group. The specifications, limits, and constraints of the alternatives must be considered in evaluation. The relative advantages of the proposed alternatives should be estimated and compared.

1.9.2.2 Integration Requirements and Consequences. Solutions or decisions often have to be incorporated into an ongoing organization or process. All of the alternate solutions must be evaluated in terms of their compatibility with ongoing systems. The possible consequences of the various alternatives should also be considered.

1.9.2.3 Evaluations of Support Evidence. A final review of the evidence (factual and inferential) supporting each of the alternatives should be made.

1.9.2.4 Combining Alternatives. The surviving alternatives can be examined with an eye toward possible combination. Integration of several alternatives might produce a more sound decision.

1.9.2.5 Test Against Predefined Decision Criteria. Earlier we suggested that the group make a list of specifications and criteria that must be satisfied in order to meet the needs of the problem situation. At this time each of the alternatives should be tested against these criteria.

1.9.2.6 Acceptability to Group Members. The human factor of preference is another point of view that enters into the final evaluation process. If the decision is to be representative of the group, then

the solution or final decision should be agreeable to all group members.

The final evaluation process provides group members with the opportunity to assess the comparative value of all alternatives that have passed through the screening process. At this stage, more than other phases in the group decision process preferences and biases should be permitted to operate within a supportive atmosphere. Group members should feel free to express their opinions and explore the position of others during this phase.

1.10 Decide

When all the alternatives have been compared and evaluated, the group is at the point for decision. If a clearly preferable alternative does not emerge as the result of the final evaluation process, then negotiation is necessary. Group consensus on the decision is the object of such negotiation, and a spirit of cooperation and willingness to bargain must prevail if consensus is to be achieved.

The decision reached by the group should be put in writing. with all members agreeing to the wording of the decision product. The written form of the decision will serve as the communication referent for the course of action to follow. Therefore, careful attention should be paid to the process of finalizing the decision in writing.

Concluding Remarks

The process outlined above is a somewhat formalized approach to group problem finding-solving and decision making. It should not be adhered to rigidly. Time requirements, the nature of the problem,

group member knowledges and skills can all affect the stages the group must go through before reaching viable alternatives. While it is helpful for the group to have organizational procedures to follow, these should never get in the way of the decision process itself. Remember, group procedures should remain flexible subject to the nature of the task before the group.

2. Establish An Open and Supportive Climate for Group Activities

The atmosphere (mood, feeling, tone) surrounding and within the group will affect its productivity. The organizational climate most suitable for group operations is one in which openness and supportiveness prevail because it is likely to foster a similar climate in problem finding-solving and decision groups. The establishment and maintenance of an open and supportive operational climate requires direct effort on the part of both management and group participants.

2.1 Openness

In an accepting or open atmosphere, group creativity and productivity are increased by a willingness of group members to listen, empathize, trust, share information and accept others' ideas, as contrasted with a defensive or closed atmosphere where elements of distrust, poor communication, tension, disagreement, hostility and fear operate as barriers to group productivity. The climate of the group is bound to vary, but every effort should be exerted to keep it as open as possible.

An open climate can be encouraged by:

2.1.1 "Good Group Behavior." Be friendly, warm and responsive to all contributions. Demonstrate a willingness to listen, to hear a person fully before making comments of your own or seeking others' reactions.

2.1.2 Accepting and Clarifying Member Contributions. Well-received contributions are likely to produce more contributions. Sometimes, mere repetition of a member contribution is a sufficient indicator of acceptance. Other times, rephrasing or clarification may be the more suitable mode. The restatement or clarification of someone else's ideas is likely to encourage cooperation between the original source and the restater, as well as planting the idea more firmly in other group members' minds.

2.1.3 Dealing Constructively with Tension When it Arises. Tension and conflict are vital aspects of effective group productivity. Harnessed with intelligence, tension helps move the group forward toward its goal; left unbridled, tension can cause deterioration in group relationships and act as an effective block to group progress.

Keep tension out front, don't allow it to smolder on back burners. Various tactics can be employed when tension arises in the group. Choice of tactics to be used will depend upon the situation, what is causing the tension and the individuals involved. For example, if the tension has developed because group members are operating on a "personal" level rather than a "task" level, changing the focus of the discussion from a personal to a situational perspective will help. Sometimes, moving the discussion from the hands of those in conflict to other members of the group will remove the strain. Humor is another way of relieving nonconstructive tension and lightening the atmosphere;

however, it should never be at the personal expense of a group member. If all other methods fail, a coffee break may be the answer.

2.1.5 Being Honest. Openness and honesty go hand in hand.

2.2 Supportive Climate

Closely akin to openness is the principle of supportive relationships. As mentioned earlier, this principle is the guiding light of participative management. It can also be considered as a guideline for the managing group processes. In order for problem finding-solving, decision-making groups to function effectively and efficiently, group members must feel that the mission put before the group, as well as those of the larger organization, are genuinely important.

> To be highly motivated, each member of the organization must feel that the organization's objectives are of significance and that his own particular task contributes in an indispensable manner to the organization's achievement of its objectives. He should see his role as difficult, important, and meaningful. This is necessary if the individual is to achieve and maintain a sense of personal worth and importance. . . . Experiences, relationships, etc., are considered to be supportive when the individual involved sees the experience (in terms of his values, goals, expectations and aspirations) as contributing to or maintaining his sense of personal worth and importance (Likert, 1961, p. 103).

A supportive climate for group members can be provided by:

2.2.1 Taking Into Consideration the Expectations and Experience of All Group Members. During the initial meetings of the group, all members of the group should have the opportunity to share with each other their expectations for the group. With this knowledge before the group, it will be much easier for group members to be supportive of one another. Knowledge of other group members' experience and

"areas of expertise" is also valuable input for supportive group operations.

2.2.2 Empathizing. Being able to put yourself in the "other fellow's shoes" is a great aid in establishing supportive relationships. An individual who can see things from another's perspective can more effectively support, change, and/or help over trouble spots.

2.2.3 Being Sensitive to Changing Needs and Desires of Individual Group Members. The desires of individuals grow and change in the course of interaction with other people and new ideas. It is important that all group members feel free to change and express that change to other members of the group. Encouraging individuals to experiment with new roles, new modes of thinking, new ideas, and new behaviors is supportive of individual growth and change.

2.2.4 Demonstrating a Willingness to Accept Influence From Group Members. An openness to the ideas and criticism of the group members as impetus for changing behavior will also make individuals appear supportive.

2.2.5 Reinforcing Contributing Members. When individuals make contributions to group progress, appreciation of their efforts should be obvious. It is important to reward the behavior of contributing rather than the contribution itself. If value judgments that indicate preference for one member's contribution over another's can be kept out of this reinforcement process, the climate is likely to be perceived as more supportive.

2.2.6 Gathering Feedback on Group Interactions, Operations, and Progress. Willingness to examine group behaviors and effectiveness should be established as part of the mechanisms for improving group

productivity. Evaluation procedures can be viewed as supportive, if the evaluation leads to constructive improvement of individual and group efforts.

2.2.7 Setting High Performance Goals Within the Group. An open and supportive climate should be the organizational framework for high performance expectations and aspirations. A supportive climate will not increase group effectiveness and productivity unless it is accompanied by high performance goals. ". . . high performance goals should not be imposed on employees, there must be a mechanism through which employees can help set the high-level goals which the satisfaction of their own needs requires" (Likert, 1967, p. 51). High performance goals should be set by the group for the group.

An open and supportive climate for group problem finding-solving and decision activities should facilitate the interaction among group members and other task groups within the organization, thereby increasing both effective communication and work productivity.

3. Use an Interventionist Approach*

There are many different approaches that one may adopt in managing group processes: directive, nondirective, democratic, authoritarian, laissez-faire, etc. These varying approaches differ primarily along the dimension of control. That is, the degree of control over group process and participation can vary from none to absolute. An

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*The author is indebted to Dr. John F. Kramer, Research Coordinator of the Oakland Community Project for suggesting this approach.

interventionist approach* would seem to be one of the more viable techniques for working with groups of educated individuals who are coming together to find-solve important problems and make important decisions. It is assumed that such groups may have an inherent maturity** that will minimize the need for strong control and guidance procedures.

Basically, an interventionist approach can be defined as exerting a modifying influence only when group behaviors indicate a possible breakdown in the objective achievement process and/or a need for guidance in starting, maintaining, or concluding the group process. The "officially" designated leader functions in that capacity only when needed. He acts only if the group experiences difficulties serious enough to threaten group morale, efficiency or effectiveness and only when the group members themselves do not appear able to cope with the problems. If the group is moving toward its objectives in a relatively constructive atmosphere, the interventionist manager moves with the tide and does nothing to alter it. If, on the other hand, obstructions to progress arise, threatening storms appear on the horizon and group members do not appear prepared to handle problems, the interventionist manager

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*The style of leadership exerted by the manager of the group process should, however, be consistent with the personality characteristics of individual members, group norms and expectations, and the norms of the larger organization within which it operates (Golembewski, 1965). The interventionist approach will probably prove most functional in organizations with open climates operating under participative management. Groups used to working under authoritarian systems may need an authoritarian leader to achieve the same degree of productivity.

**Group maturity is evidenced by a combination of member skills that promotes group efficiency and effectiveness. Mature groups are self-directed and self-controlled, with every member sharing in the responsibilities for developing and executing group activities.

may move into action. For example, if group members become seriously polarized on an issue, he may intervene to bring more objectivity to the discussion. If the discussion strays too long from the course, he may try to move it to a more profitable track by clarifying objectives and suggesting new directions. If several members of the group remain nonparticipative over a relatively long period of time, he may intervene to draw them into the activities. In all instances, however, the individual responsible for managing group process intervenes only when the group appears to be floundering or misguided under shared leadership.

3.1 Sharing Leadership Functions and Responsibilities

Underlying the interventionist approach to group management is the concept of shared leadership. If leadership is defined as "a set of functions which must be carried out in order for the group to maintain satisfying human relationships, coordinate its energies, and perform its assigned tasks" (Barnlund and Haiman, 1960, p. 293), two questions arise, WHO? and HOW? When leadership is viewed as a set of functions or actions, rather than a combination of personality traits or a matter of status, it becomes possible to distribute it in a variety of ways. Ideally, the functions and actions necessary for moving the group forward should be shared by all members of the group. This might be called a diffused leadership model. Diffused leadership means that the total leadership talent of the group is utilized, with each group member assuming responsibility for the performance effectiveness of the group. Shared leadership is likely to increase involvement of all group members.

Designating a group leader often sets that individual apart from

the group and sterilizes the effectiveness of that individual as a contributing group member. Shared leadership means all members of the group are fully operative, integral, functioning elements in the group process, all free to contribute information and opinions.

Shared leadership can also diminish status differences. Perceived differences in status have been found to impede the flow of information and communication and stifle criticism (Collins and Guetzkow, 1964), the egalitarian approach to leadership should decrease perceived status differences and increase the flow of information, communication, and healthy criticism.

An additional advantage of shared leadership lies in the fact that the group does not become disabled or move toward chaos if the leader is absent. Since there is no specialization of the role and since no one individual holds the position, the group cannot become dependent on any one individual to perform the leadership functions.

Shared leadership affords all group members the maximum opportunity to develop their own skills of leadership. It can even be viewed as a human resource development aid, as it contributes to professional and organizational development through developing leadership capabilities among a greater number of employees.

Even when shared leadership is the operating norm of the group, there will be times when the group needs to be prodded, rescued, re-routed, etc. At those times the individual holding the formal responsibility of managing the group process intervenes. Some of the more typical kinds of intervention activities include: (1) encouraging balanced participation and a free flow of communication; (2) directing conflict toward constructive effects; (3) channeling group energies;

and (4) keeping time limits and constraints before the group.

3.2 Encouraging Balanced Participation and a Free Flow of Communication

At one time or another most groups face problems of unbalanced participation and breakdowns in communication that impede the progress of the group. The most common participation problems are nonparticipation and/or monopolization of group communication by one or two members of the group. These problems can be avoided to some extent through training individuals to work and communicate in the small group situation.

3.2.1 Nonparticipation

Nonparticipating behavior from members of the group can indicate: apathy or lack of involvement with tasks before the group; disillusionment with leadership, norms of the group or the interpersonal relationships in the group; a group size too large to permit contributions from all group members; a restrictive-directive climate; fear of criticism or opposition; habits of nonparticipation--submissiveness, cynicism, lack of confidence in ability to interact successfully with group members, etc. Whatever the cause, nonparticipating, noncontributing group members do not increase the effectiveness and productivity of the group.

Certain steps can be taken to forestall nonparticipation problems.

(1) One of the best ways of ensuring participation is to select individuals for group membership who are vitally interested or involved with the problem or decision at hand. Personal involvement with the issue is an impetus for communication.

(2) As mentioned earlier, an atmosphere that is open and supportive is conducive to participation. Therefore, in initial phases of group operation, group norms that reinforce expression of ideas and opinions under optimal listening conditions and discussion of contributions in an open, honest, and nonprejudiced manner should be established.

(3) Training sessions emphasizing member responsibility for participation can also be useful in forestalling nonparticipation problems. Different ways of participating can be emphasized such as: supporting other members' contributions, clarifying others' ideas, asking exploratory questions, playing the devil's advocate, etc. Such training sessions can be useful in developing the skills necessary for shared leadership.

Even with such anticipatory measures taken to encourage participation, there are likely to be occasions when group effectiveness is hindered by nonparticipating members. In such instances, the interventionist manager can:

3.2.1.1 Ask the group as a whole how they feel about the issues being discussed. This places responsibility for contributing on all group members.

3.2.1.2 Create opportunities to indicate agreement or disagreement. The group manager can check for agreement and other points of view in the group by asking such questions as "How do the rest of you feel about that" or "Let's talk about how that solution might work."

3.2.1.3 Ask exploratory rather than judgmental questions. Questions put in an exploratory vein tend to raise issues that require further exposition or thought.

3.2.1.4 Introduce long pauses. For some reason human beings cannot sit in silence, so pausing for responses or other contributions can prompt more discussion.

3.2.1.5 Assume the role of devil's advocate. Taking an unpopular point of view can stimulate contributions from group members. This tactic is not only effective in producing a higher level of interest, it also serves as a healthy antidote in groups where unanimity is too often or too readily achieved.

3.2.1.6 Design some interest-stimulating activities. Field trips, lectures, controversial films, role-playing activities, etc., can provide group members with fresh insights and inputs.

3.2.1.7 Give special assignments to inactive members. For example, an inactive member could be asked to summarize the discussion, keep records or pose questions during one or several of the meetings.

3.2.1.8 Encourage the more active members of the group to draw in the less active members. Active group members might call on inactive members to get their reactions.

3.2.1.9 Subdivide group into smaller groups. A smaller group will necessitate contributions from all members. Often when a problem is extremely complex, time can be saved by dividing the tasks among small subgroups.

3.2.1.10 Use a group feedback session in which the problem of balanced participation is put before the group. Depending on the seriousness of the problem, it may be worth the time to stop the discussion of the issues at hand and focus for a moment on the group process and the lack of participation by some members.

3.2.2 Overparticipation

The other obstacle to balanced participation and free-flowing communication is overparticipation or domination of group activities by one or two group members. Continuous domination of group process by a few individuals can lead to increasing noninvolvement on the part of other group members. Overparticipators tend to be authoritarian, dogmatic, and assume superiority in their contributions. When group progress suffers because one or two members are dominating the discussion, the group manager can:

3.2.2.1 Intervene at a logical point and ask for someone else's opinion on the issue.

3.2.2.2 Call member(s) aside and point out the problem. Sometimes people are unaware of their domination. The group manager can even approach the issue as though it were a problem of getting some of the other group members to participate, and enlist the help of the over-participator in drawing more people into the discussion.

3.2.2.3 Use group feedback and evaluation techniques within a group session to focus on the problem.

3.2.2.4 Assign the overparticipator the role of group process observer or recorder.

3.2.2.5 Put the dominator in social quarantine, if all else fails.

An atmosphere in which all group members have an equal opportunity to participate should prevail. When signs of imbalanced participation become apparent, an intervention to re-establish a sense of balanced contribution and participation should be made.

3.3 Making Constructive Use of Conflict

Because individuals have different values, different sets of experiences, and different information, all groups are likely to be faced with internal conflicts during work sessions. In most instances, decision means choosing from among viable alternatives; and because there are different possibilities, there are bound to be differences of opinion . . . and conflict. Differences are vital to the decision-making process, but bitter, strongly personal, unresolved differences can immobilize the group. Three types of conflict are frequently operative in group process: interpersonal conflict, issue conflict, and value conflict.

3.3.1 Interpersonal Conflict

The hostility stemming from interpersonal conflict can rarely be put to constructive use. Clashes arising from personality differences, the dislike of one human being for another, personal antagonism or hostility are likely to send the group round in circles rather than forward toward its goal.

Interpersonal hostility can be expressed in many ways; a tendency to monopolize the group discussion with a rapid-fire barrage of information and opinion, persistent negativism, belligerence, dogmatic expressions of opinion, biting jokes at the expense of other group members, cynicism, excessive moralizing, and blocking others' contributions through excessive criticism. Underlying most of the manifestations of hostility are frustrations and/or insecurities.

The manner in which the interpersonal conflict is dealt with is, in part, determined by the nature of the conflict. Possible approaches to dealing with interpersonal conflicts that impede the progress of the group towards its goals include:

3.3.1.1 Providing opportunities for the members of the group to engage in activities together which enable them to get to know each other as human beings and help build feelings of friendship and rapport. This might be termed a "preventative" approach. It involves the process of building relationships among group members before moving directly to task activities.

3.3.1.2 Focusing on the problem. Invoke feedback and group self-evaluation mechanisms and explore the problem that is subverting group energies.

3.3.1.3 Role-playing. Often members of the group can work through interpersonal conflicts by using socio-dramatic techniques such as role-playing. Such devices permit those most heatedly involved to observe their behavior from another point of view.

3.3.1.4 Taking time out for a summit conference. If the situation is too volatile to handle in the group situation, private talks with the sources of conflict should be arranged. These can be either separate or joint, depending on the nature of the conflict.

3.3.1.5 Redirecting hostile energies. If the source of conflict

is an habitually hostile individual, efforts can be made to rechannel his energies. For example, such an individual might be asked to give a special report on one aspect of the problem or asked to help encourage those members of the group who tend to be nonparticipators. In other words, if some constructive task for his energy can be found, it is less likely to turn into hostility.

3.3.1.6 Reshaping the group. If interpersonal conflict persists, changing group membership may be necessary in order for the group to achieve its goals.

3.3.2 Issue Conflict

Issue conflict is natural in the decision-making process, for if there were no conflict of opinions, there would be no need for a decision. In most instances, group members will deal with their disagreements over issues in the course of the group discussion. If, however, there are indicators that the disagreements are building to an overly aggressive and unresolvable conflict, the following types of intervention may prove useful:

3.3.2.1 Clarifying the locus of disagreement. To keep disagreements over issues from moving to a personal level, group members can be asked to be more "concrete" in their explanations of position. Forcing the argument to the level of explanation may ward off personal attacks and isolate the point of contention at a level where it can be dealt with.

3.3.2.2 Refocusing on the problem. It may be wise to take time out and examine the group goals and objectives. With a goal focus, the mutual benefits that can result from ironing out the conflict can be emphasized. Existence of a common purpose makes it possible to tie controversies over lesser objectives to the attainment of the larger group purpose.

3.3.2.3 Focusing on supporting evidence. Issue conflicts can often be resolved by carefully examining the validity and/or reliability of the evidence being used to support the arguments.

3.3.2.4 Pointing out areas of agreement. It may prove useful to search out areas of agreement. There may be less difference of opinion than would seem apparent.

3.3.2.5 Summarizing the conflicting positions. Asking those involved in the conflict to summarize their positions is another way

of isolating the locus of disagreement.

3.3.2.6 Shifting to another aspect of the problem. If the issue cannot be resolved at the moment, shifting to some other aspect of the problem may relieve the tension and start the group moving forward again. When the issue has had time to cool down, it may not raise the same degree of conflict when brought to the fore again.

3.3.2.7 Negotiating. If the issue remains unresolved, the attention of the group should be turned to negotiation and compromise.

Issue and opinion differences must be resolved if all group members are to feel satisfied with the final choice. In the midst of conflict, it might be wise to point out that the group is searching for alternatives acceptable to all.

3.3.3 Value Conflict

The most difficult type of conflict to resolve is that originating from differences in values. Values are "those conceptions of desirable states of affairs that are utilized in selective conduct as criteria for preference or choice or as justifications for proposed or actual behavior" (Williams, 1967, p.23). Values are by their nature persistent. Since they serve as criteria of judgment and action, they are not as open to be judged and reevaluated as opinion. When an individual holds to a position because it is or isn't in accordance with those things he values or rejects, it is going to be difficult to change him. The process involved in overcoming value barriers is likely to be long and time consuming. Value conflicts can be exposed and possibly resolved by: (1) ferreting out and testing the theoretical assumptions on which the values rest and/or (2) empirically examining the consequences of beliefs through experimentation and/or experience.

When the group is faced with making policy decisions, value conflict

is likely to be present, as setting policy involves making value judgments and choices. If possible, plenty of time should be allocated for policy decision making to permit value examination and change.

Conflicts, whatever their nature, must be resolved if maximum effectiveness and productivity is to be achieved. They are useful sparks to ignite movement of the group toward its goal, but left untended, they can impede progress and cause total breakdown of group efforts.

3.4 Channeling for Group Productivity

Often the energies of the group need to be channeled toward productivity. It is easy for a group to get off the track, lose cognizance of the time allotted for solving the problem or reaching the decision, dissipate their energies in unfruitful ventures, and/or find themselves constrained by the work environment. Intervening in the work situation to assure group productivity can involve:

3.4.1 Making Sure the Work Environment is Conducive to Problem Solving and Decision Making

Problem-solving and decision-making groups require a comfortable working situation that: (1) encourages interaction and the free flow of communication between participants; (2) facilitates the consideration of alternatives; and (3) is free from distractions. The trend seems to be toward the establishment of a specific room for group problem finding-solving and decision making.

Setting aside a specific room can eliminate the tendency to be constrained and interrupted by routine functions of the organization.

A decision-making room can be designed specifically to aid the interaction and consideration processes. Chairs and tables can be arranged to promote a free flow of discussion. Visual aids, such as blackboards, display areas, overhead projectors, film projectors, screens, etc., can be included among the permanent accessories in the room permitting immediate utilization.

Constructing and maintaining a conducive physical atmosphere is one way of channeling the resources of the organization to promote group productivity.

3.4.2 Keep Time Limits and Constraints Before the Group

Often problem finding-solving and decision-making groups will be operating under time deadlines, which makes efficient use of the time allotted a necessity. When time constraints impose pressures on the group, it may be wise to take time to develop a workable operations plan that will move the group towards its goal within the given time period. To this end, it may be advantageous to develop an operations network and schedule (PERT) the problem-solving or decision-making activities. Using network-based management procedures to estimate, in advance, the time necessary for definition of the problem, data-gathering and evaluation, alternative development and consideration, etc., impending bottlenecks can be indicated and avoided, personnel can be allocated appropriately, deadlines can be established and starting times determined (see Allen Buckner, Network-Based Management Procedures, Operation PEP, 1970).

3.4.3 Keep the Goals Before the Group

In order for groups to be productive, their efforts must be directed toward some goal. Goal statements can be written on the blackboard or projected on overheads for the purpose of reminding the group where it is they are going.

Channeling group efforts by providing a framework (physical and mental) for group members is the type of preparatory and continuous intervention that even the most efficient groups will benefit from.

Using an interventionist philosophy in managing group processes provides the maximum freedom and responsibility for both the group members and the individual formally assigned the task of managing the group. Participative management reaches its zenith when the need for intervention becomes negligible.

4. Encourage Group Feedback and Evaluation

All objective-oriented groups need to stop periodically and assess the group experience. "Through intelligent use of feedback a group can reinforce patterns of interaction that increase its effectiveness or modify norms that interfere with its operation" (Barnlund and Haiman, 1960, p. 388). In this context, feedback simply refers to reviewing the past actions of the group to find out how they advanced or retarded progress toward the group's goals. Several approaches to feedback and group evaluation are available.

4.1 Free-Flow Feedback and Evaluation

Unstructured feedback and evaluation procedures allow the group

to stop whenever the time is ripe and look. Two factors affect this approach: WHEN? and WHAT?

4.1.1 Timing of the Feedback Process

There is no one answer to the question of: "When should a group discuss its own process?" Feedback activities can occur during a specified time at the beginning or end of a meeting or whenever something occurs in the group that deserves attention. Advocates of the regular set time feel that group self-analysis is ensured if there is a regular time set aside for it. Further, the regular and systematic review is likely to be more objective. Just as it has its advantages, regular evaluation periods also have their limitations. For example, we know that any prescribed routine can deteriorate easily into empty ritual.

Proponents of the "discuss your problems as they arise" school argue that on-the-spot analysis of trouble spots is likely to be more accurate. Group members may have difficulty dredging up past experiences that are over and done with and reacting anew to them. Discussing problems as they arise during group sessions can prevent them from turning into more serious ones, but it can also break the continuity of group thought.

Probably a judicious mixture of spontaneous and routine evaluation is the most beneficial to group productivity.

4.1.2 Content of Self-Analysis

Anything is grist for the self-analysis mill. Anything that appears

to have affected group performance can be discussed. Organization of the meeting, physical surroundings, extent of apathy in the group, group norms, the information level of the group can all be examined with an eye towards improving the next time.

It is important that this type of analysis be handled objectively, and that all group members have the opportunity to offer their reactions as frankly as possible. There will be less chance for distortion if faulty or biased interpretations can be corrected on the spot, and all members are likely to profit from the sharing of evaluations. "As people talk about their own impulses and reactions they are likely to become more critical of themselves and more highly motivated to improve their behavior. A few minutes of evaluation can clear channels of communication, dissipate antagonisms, correct inappropriate procedures, and increase motivation for working more effectively in the future" (Barnlund and Haiman, 1960, p. 392).

4.2 Structured Feedback and Evaluation

There may be instances when more specific information about group processes are required. To this end, the feedback and evaluation can be structured. There are several ways to do this.

4.2.1 Post-Meeting Reaction Form

When the group would like to gather information on specific issues and/or behaviors or keep a continuing record of group evaluations, a p.m.r. form may prove worthwhile. A p.m.r. is simply a written questionnaire of some kind designed for administration after group sessions to

elicit comments from the group on critical aspects: of the issues before the group; the relationships in the group; the group's progress; and satisfaction. It can include items evaluating both task and process areas, or focus on any one aspect of group process.

4.2.2 Group Observers

If the group wishes a different perspective, that is, one that operates from a nonparticipative view, observers can be appointed. Observers are more apt to give an unbiased picture of the group process than members who are thoroughly involved in the proceedings of the group. The kind of feedback the group feels will be beneficial determines the focus the observer takes. Some groups may want a report on the problem-solving mechanisms of the group--the quality of the thinking, the handling of the evidence, the testing of alternatives, the creativity of the alternatives proposed, the diagnosis of the problem, etc. At other times the group may wish to focus on the interpersonal relationships and climate of the group looking at: the nature of the group atmosphere, amount and kinds of individual participation, interpersonal tension and its release, leadership, lines of communication, etc.

Observers should know why they are there and the nature of the report they are to give. Some groups may wish just an objective description of the meeting, others may wish interpretation and/or evaluation. A well-thought-out form, detailing the type of information the observer is to collect, can be exceedingly helpful in the data-collection process.

Observers can be either members of the group, who for the moment assume the observers' chair or individuals trained in observation of

group process. Both have their advantages and disadvantages. Rotating the role of observer among group members can often improve their sensitivity to group process and their role in it. On the other hand, using a member of the group as an observer deprives the group of his knowledge and skills. Although a trained observer can provide the group with valuable insights into their group behavior, there may be some problem establishing the credibility of the observer and his input.

4.2.3 In-Process Technical Aids

If the group is interested in assessing the emotional tone of the group and the relative strengths of reactions to issues or events occurring, a reaction profile of the group can be made with the use of electronic devices such as light boards, which are set up with responders for each person, and a control bank of relays. These have limited value as feedback devices, since they tend to draw attention to themselves.

Whether structured or free-form, feedback and evaluation procedures are essential elements in efficient and effective group processes. Feedback procedures facilitate the development of group maturity and productivity. They make operating in groups a learning experience for all members, increasing their abilities to function more effectively in future task groups. Without such aids the group experience is likely to go unexamined and unevaluated, and thus not contain the human resource development potential that is present in feedback-oriented groups.

Summary and Conclusions

Managing group process within the context of a larger and more formal organized structure requires sensitivity to the organization, the group, and the individuals who make up the group. Integrating the values, needs, and goals of all three into an effective and productive force for change will depend on developing a high degree of structural and style harmony. That is, to achieve optimum task and socio-emotional performance in problem finding-solving and decision-making groups, the leadership and/or management structure and style, and framing and guiding the group process must be compatible and congruent with the expectations of individual members, as well as the norms of the organization.

The guidelines offered in this chapter will prove most useful in matrix organizations operating in the participative management vein. Within the "participation" framework, the individual who is formally designated as responsible for group performance serves mainly facilitating functions. These functions might include (among other things): (1) initiating group process; (2) planning for a systematic approach to the problem or decision; (3) making agenda and procedural suggestions; (4) facilitating and contributing input; (5) stimulating information and opinion exchange among group members; (6) sparking creativity; (7) clarifying; (8) developing and maintaining a climate conducive to group productivity; (9) peace making; (10) encouraging constructive critical processes; (11) maintaining balanced participation; and (12) instigating group self-analysis and feedback procedures.

An effective, productive, and mature group is an indicator that the group manager is functioning effectively as a facilitator of

optimum group performance. Lippitt and Seashore (1962, p. 53-55) point out some indicators of group maturity that may prove useful focus points for analysis of the group and the facilitating group manager:

1. Ability to integrate group and individual goals.
2. Different members performing appropriate leadership functions as needed.
3. Balance of communication between content and feeling--and the freedom to communicate both.
4. Tolerance for a wide range of individual behavior.
5. Adequate cohesion for efficient functioning.
6. Appropriate decision-making procedures--with minority viewpoints being considered--and a growing awareness of consensus.
7. Flexible group procedures adapted to accomplish the task.
8. Ways of examining group operation, with members giving and receiving frank reactions to individual behavior.
9. Appropriate use of the resources available to the group.

If task groups are not functioning effectively and efficiently, the manager of group process should intervene to improve group performance. A group not functioning up to par may exhibit any number of warning signs that can signal a need for intervention. The following list of warning signs and possible kinds of intervention may prove useful in helping a floundering group.

Warning Signs	Possible Kinds of Intervention*
1. Apathy, indicated by prolonged silences, indifference to group task, side conversations, day dreaming,	1. (a) Draw nonparticipating members into discussion through direct questions. (b) Play the devil's

*This is in no way intended to be an exhaustive list of actions a group manager could take to overcome the problems indicated.

Warning Signs	Possible Kinds of Intervention
irrelevant comments, general passivity, lack of confidence in ideas.	advocate, assume an unpopular view of stimulate interest. (c) Give inactive members a specific assignment in group. (d) Ask apathetic member to clarify point made by someone else. (e) Have group discuss apathetic overtones.
2. Monopoly of discussion by one or two of the group members or psychological domination by one or two of group members that discourages initiative of other members.	2. (a) Ask another group member for his opinion on issue being discussed. (b) Solicit group feedback from others on effect of monopolization or domination. (c) Ask dominator to serve as recorder or group process observer. (d) Outside meeting, ask help of monopolizer in drawing out nonparticipating members. (e) Socially quarantine the dominator through isolation by other group members.
3. Interpersonal conflict--hostility (a) Overt hostility can be indicated by excessive talk, excessive criticism, belligerence, dogmatism, inflexibility, namecalling, overt put-downs of ideas, chronic fighting, deflating others' status. (b) Indirect manifestations of hostility include: biting jokes, murmurs of disapproval, negativism cloaked in rationality. (c) Heated personal disagreement over issue.	3. (a) Search for areas of agreement--might have group make lists of least and most controversial issues. Have group consider least controversial issues first. (b) Ask those involved in this disagreement to summarize their positions. (c) Role-play the conflict through other group members. (d) Shift discussion to another issue less fraught with conflict. (e) Attempt to move level of discussion from personal to situational or issue level.
4. Straying from topic or task.	4. (a) Ask question of group to move them back to topic. (b) Periodically summarize and review progress. (c) Remind group of objectives.

Warning Signs	Possible Kinds of Intervention
5. Formation of cliques or sub-groups--either from too much or too little interest.	5. (a) Make new openings for private conversers to bring their points of view before the group. (b) Bring problem before group for consideration. (c) Take a break to give members time to get personal matters resolved.
6. Dismissal reactions--rejection of ideas either in a verbal or nonverbal manner--indications that there is a wish to delve no further into issue.	6. (a) Ask for reasoning behind rejection behavior--why? (b) Ignore if individual reaction and attempt to move group forward in consideration of the issue.
7. Evasive reactions--detour around issues instead of confronting--use of platitudes in place of criticism.	7. (a) Ask direct questions hitting on target issues. (b) Ask exploratory questions aimed at drawing out more in-depth reactions.
8. Polarization--tendency to regard issue in terms of two mutually exclusive categories--tendency to eliminate middle ground.	8. (a) Present another way of looking at the problem. (b) Point out principle of relativity. (c) Provide open climate, so people are not afraid to change positions.

Throughout the group process, the facilitating manager should encourage feedback and self-examination of individual and group behavior. Examining member and manager behavior may be facilitated through the questions raised in the following check lists. Additional questions should be added for more thorough analysis.

Group Member Participation Questions

Information

1. Is the participant's evidence pertinent, plentiful, and documented?

2. Does the participant recognize the limitation of his own evidence?

3. Does he supply information to supplement or test information contributed by other members of the group?

Critical Thinking

1. Does the participant contribute one point at a time?

2. Does he answer questions directly, specifically, briefly?

3. Does he test all thinking by critical, logical analysis?

4. Does he distinguish fact from opinion?

5. Does he distinguish disagreements in language from more fundamental disagreements?

Cooperation

1. Does the participant listen attentively?

2. Does he stay on the subject?

3. Does he make every effort to bring out all points of view?

4. Does he exhibit willingness to change his opinion when change is justified?

5. Does he support needed leadership?

6. Does he define areas of agreement and possible agreement?

7. Does his manner of disagreeing or criticizing promote group harmony?

8. Does he recognize and approve useful contributions?

9. Does he contribute to the enjoyment of the task?

Group Management Questions

1. Has the manager established and maintained an open climate?

2. Is the manager supportive of all individuals in the group?

3. Does the manager get or give accurate periodic summaries?

4. Does he give or get clarification of vague or ambiguous contributions?

5. Does he promote evaluation of all generalizations?

6. Does he separate idea getting from ideal evaluation?

7. Does he protect minority opinion?

8. Does he minimize interpersonal conflict?

9. Does he make constructive use of issue or situational conflict?

10. Does he assume leadership functions only when necessary?

APPENDIX A: A LIST OF PROPOSITIONS ABOUT GROUP PROCESS THAT WOULD APPEAR RELEVANT FOR EDUCATIONAL DECISION MAKERS

A LIST OF PROPOSITIONS ABOUT GROUP PROCESS THAT WOULD APPEAR RELEVANT FOR EDUCATIONAL DECISION MAKERS*

Use of Appendix A

Some aspects of small group problem finding-solving and decision making have been the focus of empirical research. In Appendix A you will find a list of propositions developed through careful analysis of research findings* that may prove helpful in setting up groups to ensure maximum productivity, using groups only with those tasks that prove especially amenable to group process, anticipating problems and planning to prevent them, and solving problems when they do arise.

For example: (1) in drawing together individuals for a group task, one should be aware of the influence the perceived power-status has on communication and balanced participation (p. 149, propositions under 2.3); (2) group activities usually require more man hours than individuals working alone (p. 148, proposition 1.3), so groups can be effectively used only when adequate time and resources are available

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*This list of propositions is drawn from B. Collins and H. Guetzkow, 1964, A Social Psychology of Group Processes for Decision-Making, New York, John Wiley & Sons, and represents one of the better abstractions made from available research data. The basic list is supplemented with other propositions offered by J. Klein, 1956, The Study of Groups, London, Routledge & Kegan Paul, Ltd. Propositions drawn from Klein are indicated with an asterisk.

for the "extra" expenditures; (3) knowing that permanent leadership causes restricted communication patterns (p. 151, proposition 2.12), the group manager may wish to help the group develop skills for diffused leadership; and (4) in resolving conflicts over issues, it is best to use facts (p. 154, proposition 5.2.1).

Hopefully, these propositions, combined with the guidelines, will be helpful to educators who are beginning to work with and through problem finding-solving and decision-making groups.

1. Group and Individual Performance

1.1 When several individuals work collectively on a single task their activities will (a) overlap and/or (b) make a division of labor possible.

1.1.1 For tasks which involve creating ideas or remembering information, there is a greater probability that one of several persons will produce the information than that a single individual will produce it by himself.

1.2 When several individuals are limited to a single product (decision), it will be selected from available ideas and information.

1.2.1 The final group product will exclude some of the ideas and information potentially available to each member.

1.2.2 The accuracy and quality of the final group product will be increased through the elimination of inferior individual contributions.

1.3 A group of individuals working together will usually consume more man-hours when compared to (a) an equal number of individuals working separately, and (b) a group with fewer members.

1.4 When an individual works in the presence of other persons, a variety of social motives become relevant which are not evoked when an individual works alone.

1.4.1 The presence of other individuals will frequently increase individual productivity, although the effect may be temporary.

1.4.2 The presence of other individuals may increase the

defensiveness of the individual, although the effect may be temporary.

1.4.3 The presence of other individuals can constitute a distraction and lower productivity.

1.5 The quality of the group product frequently increases when group members utilize social sources of knowledge.

1.5.1 The group is likely to accept a member's contribution (a) when it is well supported by evidence, (b) when it is logically sound or internally consistent, and (c) when it is consistent with past experience.

1.5.2 The social weighting given to the majority opinion frequently causes the better alternatives to be chosen.

1.6 Group members may collectively achieve more than the most superior members are capable of achieving alone.

*1.7 Where a problem to be solved has no correct and verifiable answer, the speed with which a conclusion is reached varies inversely to the size of the groups.

2. Communication, Status, and Interaction

2.1 Interaction will be unevenly distributed among group members.

*2.1.1 Valuable members are likely to be regarded as productive.

2.2 The more interactions initiated by a group member, the more interactions will be directed to him by other group members.

*2.2.1 Frequent contributors speak to one another and tend to support one another, reinforcing each other's high status and maintaining the lower status of other members.

2.3 The power-status hierarchy will influence the flow and content of communication within the face-to-face group.

2.3.1 When there is an established power-status hierarchy, all group members will direct more communication to high power-status persons.

2.3.2 When a status hierarchy is still in the process of being developed, participants who aspire to high status will communicate more to low status persons than other aspiring high status persons.

2.3.3 High power-status persons will initiate more communication than low status persons.

2.3.4 The content of communication from low to high

power-status persons will depend on what the low status person has learned is most likely to obtain reinforcement.

*2.3.5 When status differences are recognized by members of the group, low status members tend to inhibit their own communications. Thus communication becomes restricted and authority divorced from skill.

*2.3.6 Frequent speakers make more suggestions and give their opinions relatively more frequently than quiet members. Quiet members tend to communicate relatively more frequently their approval or disapproval of what has been suggested by more frequent speakers.

*2.3.7 Consciousness of high status improves performance and increases the tendency of other members to perceive a performance as good. The opposite is true in the case of low status members. Skill itself is therefore to some extent a socially determined characteristic.

*2.3.8 Consciousness of status differences may affect the content of communication in the following ways: (a) high-status members criticize low-status members; (b) high-status members do not criticize one another; (c) low-status members express more confusion with the task although they make no more errors; and (d) low-status members feel they cannot make as good suggestions as high status members.

2.4 High power persons possess more influence.

2.4.1 High power persons exert influence without making overt behavioral attempts to influence.

2.4.2 High power persons will initiate more communication classified specifically as influence attempts.

2.4.3 High power persons will be successful in a larger percentage of the influence attempts which they do make than lower power persons.

2.5 High power persons will be less affected by the efforts of others to influence them.

2.6 High power persons tend to form cliques.

2.7 Low power persons will behave deferentially toward high power persons.

2.8 Low power persons will be suspicious of high power agents who can arbitrarily award or withhold important resources.

2.9 Low power persons will be threatened if ambiguity exists in their relationships with high power agents.

2.10 Communication will be directed toward (a) persons in close physical proximity, (b) persons in the same work group, and (c) the same socio-economic status.

*2.10.1 Members who like one another will tend to respond to one another more frequently than to those they like less well.

2.11 Communication serves to increase the uniformity of opinion within the group.

2.11.1 A high number of communications will be addressed to an accepted group member who expresses deviate opinions.

2.11.2 Rejection of the deviate and subgroup formation will result in a low number of communications addressed to an unaccepted group member who expresses deviant opinions.

*2.11.3 The contributions made by unpopular members tend to be disregarded.

*2.12 Restricted communication is characteristic of permanent leadership hierarchies.

*2.13 Groups will form efficient communication patterns spontaneously if there is a lengthy period of unrestricted communication before the structure becomes permanent.

*2.14 In a given period of time members of a small group can contribute more to a discussion than members of a larger group.

*2.15 A popular group member has: (a) greater direct and indirect access to resources; (b) more control over other members; (c) more insight into the behavior of other members; and (d) more opportunity to gauge opinion in the group.

*2.16 The greater the amount of interaction between members: (a) the more information about the personality of members; (b) the more definite the sentiments of members toward each other; and (c) the more consensus concerning the popularity status.

*2.17 Interaction corrects error of judgment concerning the personality of other group members.

*2.18 As the pressure of the environment increases, (a) the interaction in the internal system decreases and (b) division of labor and restricted communication increase.

*2.19 Members who attempt to control the group tend to lose their popularity.

*2.20 The more interaction, the more positive is the sentiment towards others in the group and towards those who interact frequently.

EXCEPT:

2.20.1 where interaction does not give information

2.20.2 where the task is disliked

2.20.3 where control is attempted by a member with deviating norms

2.20.4 where subgroups have different norms.

3. Sources of Power-Status

3.1 Direct control of task-environmental rewards is a source of power.

3.2 Control of rewards associated with "friendly interaction" is a source of power.

3.2.1 The greater the personal attraction of other group members to a single individual, the greater the power of that individual.

3.2.2 The greater the interpersonal attraction among the members of a group, the greater the power of the "group" over the group members.

3.3 Control of punishment will be a source of power when (a) the conditions of punishment are clearly specified and (b) compliance can be observed.

3.4 Punishment-based power (a) will not lead to interpersonal liking and (b) will inhibit the exercise of power based on interpersonal attraction.

3.5 When several individuals are rewarded or punished as an entity, the "group" will have power over the individual members.

3.5.1 Under conditions of common fate, the individuals will develop an interpersonal attraction.

3.5.2 The individual members will have more influence over each other under conditions of common fate.

3.6 An individual who has been successful in the past will have increased power.

3.7 An individual with a reputation of competence will have power even if the group members have not directly observed his success.

3.8 Formal designation as a leader, supervisor, boss, manager, etc., will be a source of power.

3.8.1 Legitimate power will be weakened when influence attempts are outside the scope specified by formal designation.

4. Performance, the Task Environment, and Interpersonal Relations

4.1 The performance of a group is highly dependent on the task environment.

4.1.1 In general, difficult tasks lower the group production.

4.2 Individual group members are profoundly influenced by other individuals in the task environment.

4.2.1 The task environment can create interpersonal obstacles which inhibit group productivity; for example, physical structures which impede the free flow of communication, rigid lines of communication, etc.

4.2.2 Interpersonal obstacles originating in the behavior of other group members can inhibit individual and group productivity; for example, silence of one or two group members.

4.3 When an individual works alone, all his energies can focus on the task. When he works in a group, he must also attend to interpersonal relationships influencing the task.

4.4 When selecting members for a problem solving or decision making group choose those whose self-centered needs are of a less intense variety; as a minimum, include among members some whose motivation is less individualistic in its orientation.

4.5 Attempt to strengthen motivations of a cooperative nature by initial instructions given to group members and by constant reminders of the cooperative nature of the task as the group proceeds from one phase to the next. Emphasis on the cooperative aspects of the task would seem to facilitate the solution of interpersonal problems.

4.6 Increasing the heterogeneity of personality and background can have at least two effects on group interaction.

4.6.1 Increasing heterogeneity of personality can increase the difficulty of building interpersonal relations.

4.6.1.1 Interpersonal disorganization will be greatest when (a) the dimensions of personality differences are directly relevant to the interpersonal relations of group members and (b) the task requires elaborate patterns of interpersonal relations.

4.6.2 Increasing the heterogeneity of personality within a group can increase the problem-solving potential of the group.

4.6.2.1 Task facilitation is likely to be greatest when (a) the dimensions of personality differences are relevant to the critical demands of the task and (b) the task is difficult--the advantages of heterogeneous perspectives can compensate for the time lost in ironing out interpersonal conflict.

*4.7 In a poorly organized group or in a group with status conflict: (a) attainment of aims by one member can hinder the performance of others; (b) members withhold information from one another; (c) members communicate hostile feelings and criticisms; and (d) members communicate a great deal of information unrelated to the task.

5. Resolving Conflict

5.1 High consensus among group members in either substantive or affective conflict can be achieved when: (a) there is little expression of personal, self-oriented needs; (b) expressed self-needs are satisfied during the course of the meeting; (c) there is a generally pleasant atmosphere and the participants recognize the need for unified action; and (d) the group's problem-solving activity is understandable, orderly, and focused on one issue at a time.

5.2 High consensus among group members in substantive conflict can be achieved when: (a) facts are available and used; (b) the chairman, through much solution proposing, aids the group in penetrating its agenda problems; and (c) participants feel warm and friendly toward each other in a personal way.

5.3 High consensus among group members in affective conflict can be achieved when: (a) the group withdraws from its problem-solving activities by tackling only discrete, simpler agenda items; (b) group members withdraw from the problem situation and have little interest in what is being discussed; and (c) group members withdraw from interpersonal contact with each other.

6. The Influence of Norms

*6.1 Individuals most readily conform to the norms of those groups in which they value membership.

*6.1.1 When in a valued group, a man will orientate his actions with respect to others in the group.

*6.1.2 The physical presence of a group is not a necessary condition for conformity to its norms.

*6.2 When there is no group whose norms are perceived as relevant in an unfamiliar situation, the norms of the culture will determine the behavior of the individual. Conversely, firm attachment to the norms of a group will enable a member to ignore or go against the norms of the culture.

*6.3 Striving for success may be qualified by the need to belong. The result is a leveling out of individual reactions: the range of deviations around the mean is narrowed.

7. Member Satisfaction

7.1 Success on the group task will produce satisfaction.

7.2 Success in solving problems of interpersonal relations will produce satisfaction.

7.2.1 Congruence of member motivation and a lack of self-oriented needs will produce satisfaction.

7.2.2 Agreement on leadership will produce satisfaction.

7.3 Interaction with persons we like and persons who like us will produce satisfaction.

7.4 A position of high power will produce satisfaction.

7.5 A position of centrality or autonomy will produce satisfaction.

8. Decision Making

*8.1 Decision making involves a power dimension because it may have to be secured by means of controlling other members.

8.1.1 In groups where decisions are transmitted by a majority vote, a small resolute group may control a larger number of indifferent members.

*8.2 If members of the decision making group differ in norms, decision making is prolonged and group pressure is exerted to secure uniformity of norms.

*8.2.1 If sub-groups differ in norms, group pressure on the deviant sub-groups is less likely to be successful and a struggle for supremacy may take place.

*8.3 If decision making is restricted to some members of the group: (a) other members will respond with respect if the groups share norms--differences in status and control will not be resented because the values are internalized and (b) other members will

respond with hostility when norms are not shared, or in groups with restricted communication, not known to be shared.

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